Conveying System
Mechanical Components

Part Number: 882.99774.00
Bulletin Number: CNV5-600
Effective: August 1, 2012

an ACS Group company

Write Down Your Serial Numbers Here For Future Reference:

_____	_____
_____	_____
_____	_____

We are committed to a continuing program of product improvement.
Specifications, appearance, and dimensions described in this manual are subject to change without notice.

DCN No. _____

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Shipping Info

Unpacking and Inspection

You should inspect the mechanical components of your conveying system for possible shipping damage.

Thoroughly check the equipment for any damage that might have occurred in transit, such as broken or loose wiring and components, loose hardware and mounting screws, etc.

In the Event of Shipping Damage

According to the contract terms and conditions of the Carrier, the responsibility of the Shipper ends at the time and place of shipment.

Notify the transportation company's local agent if you discover damage.

Hold the damaged goods and packing material for the examining agent's inspection. **Do not return any goods before the transportation company's inspection and authorization.**

File a claim with the transportation company. Substantiate the claim by referring to the agent's report. A certified copy of our invoice is available upon request. The original Bill of Lading is attached to our original invoice. If the shipment was prepaid, write us for a receipted transportation bill.

Advise customer service regarding your wish for assistance and to obtain an RMA (return material authorization) number.

If the Shipment is Not Complete

Check the packing list as back-ordered items are noted on the packing list. You should have:

- ☑ Mechanical Components of Conveying System
- ☑ Bill of lading
- ☑ Packing list
- ☑ Operating and Installation packet
- ☑ Electrical schematic and panel layout drawings
- ☑ Component instruction manuals

Re-inspect the container and packing material to see if you missed any smaller items during unpacking.

If the Shipment is Not Correct

If the shipment is not what you ordered, **contact the shipping department immediately**. For immediate assistance, please contact the correct facility located in the technical assistance section of this manual. Have the order number and item number available. Hold the items until you receive shipping instructions.

Returned Material Policy

Do not return any damaged or incorrect items until you receive shipping instructions from the shipping department.

Credit Returns

Prior to the return of any material authorization must be given by the manufacturer**.** A RMA number will be assigned for the equipment to be returned.

Reason for requesting the return must be given.

ALL returned material purchased from the manufacturer returned is subject to 15% ($75.00 minimum) restocking charge.

ALL returns are to be shipped prepaid.

The invoice number and date or purchase order number and date must be supplied.

No credit will be issued for material that is not within the manufacturer's warranty period and/or in new and unused condition, suitable for resale.

Warranty Returns

Prior to the return of any material, authorization must be given by the manufacturer. A RMA number will be assigned for the equipment to be returned.

Reason for requesting the return must be given.

All returns are to be shipped prepaid.

The invoice number and date or purchase order number and date must be supplied.

After inspecting the material, a replacement or credit will be given, at the manufacturer's discretion. If the item is found to be defective in materials or workmanship, and it was manufactured by our company**,** purchased components are covered under their specific warranty terms.

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Chapter 1: Safety

1-1 How to Use This Manual

Use this manual as a guide and reference for installing, operating, and maintaining the mechanical components of your conveying system. The purpose is to assist you in applying efficient, proven techniques that enhance equipment productivity.

This manual covers only light corrective maintenance. No other maintenance should be undertaken without first contacting a service engineer.

The Functional Description section outlines models covered, standard features, and safety features. Additional sections within the manual provide instructions for installation, pre-operational procedures, operation, preventive maintenance, and corrective maintenance.

The Installation chapter includes required data for receiving, unpacking, inspecting, and setup of the mechanical components of your conveying system. We can also provide the assistance of a factory-trained technician to help train your operator(s) for a nominal charge. This section includes instructions, checks, and adjustments that should be followed before commencing with operation of the conveying system. These instructions are intended to supplement standard shop procedures performed at shift, daily, and weekly intervals.

The Operation chapter includes a description of electrical and mechanical controls, in addition to information for operating the conveying system safely and efficiently.

The Maintenance chapter is intended to serve as a source of detailed assembly and disassembly instructions for those areas of the equipment requiring service. Preventive maintenance sections are included to ensure that the mechanical components of your conveying system provide excellent, long service.

The Troubleshooting chapter serves as a guide for identification of most common problems. Potential problems are listed, along with possible causes and related solutions.

The Appendix contains technical specifications, drawings, schematics, parts lists, and available options. A spare parts list with part numbers specific to your machine is provided with your shipping paperwork package. Refer to this section for a listing of spare parts for purchase. Have your serial number and model number ready when ordering.

Safety Symbols Used in this Manual

The following safety alert symbols are used to alert you to potential personal injury hazards. Obey all safety messages that follow these symbols to avoid possible injury or death.

⚠DANGER ***DANGER indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.***

⚠WARNING ***WARNING indicates a potentially hazardous situation or practice that, if not avoided, could result in death or serious injury.***

⚠CAUTION ***CAUTION indicates a potentially hazardous situation or practice that, if not avoided, may result in minor or moderate injury or in property damage.***

Safety Tags and Warning Labels

Hazard Alert Symbol	Description/Explanation	Preventative Maintenance
	Hand crush hazard. Hands could be exposed to a crushing movement.	Every month inspect the for any type of wear. For further information see the Maintenance Chapter in this manual.
	Electrical Shock hazard. High voltage inside enclosure. The electrical enclosure is supplied with 3-phase electrical power. Use caution when using or maintaining this product.	Every six months inspect all electrical connections for secure attachment. For further information see the Maintenance Chapter in this manual.
	High Voltage Hazard. The electrical enclosure is supplied with 3-phase electrical power. Use caution when using or maintaining this product.	Every six months inspect all electrical connections for secure attachment. For further information see the Maintenance Chapter in this manual.
	Auto start Hazard. Equipment may start at any time. Lock out/tag out before servicing the machine	Every month inspect all electrical connections for secure attachment and that all warning labels are in place. For further information see the Maintenance Chapter in this manual
	When equipped with belts and sheaves, hands could become entangled.	Every month inspect the belt(s) for any type of wear. For further information see the Maintenance Chapter in this manual.

Mandatory Symbol	Description/Explanation
	Read Operators Manual. This equipment must be operated and maintained by properly trained personnel. The information contained within this manual must be read and understood prior to operating this equipment.
	Disconnect before opening. Before servicing or maintaining the machine be sure to disconnect the power and/or compressed air source to avoid electrical shock and/or serious injury.
	Lock Out. This equipment is operated with 3-phase electrical power. Therefore, when performing any maintenance operations we recommend following the local standards for performing a lock-out/tag-out procedure.
	Wear ear and eye protection. This unit may produce loud and continuous noise and may produce projectiles.
	Pneumatic or hydraulic equipment. Pneumatic or hydraulic equipment must be kept at a safe pressure.

1-2 Warnings and Precautions

Our equipment is designed to provide safe and reliable operation when installed and operated within design specifications, following national and local safety codes. This may include, but is not limited to OSHA, NEC, CSA, SPI, and any other local, national and international regulations.

To avoid possible personal injury or equipment damage when installing, operating, or maintaining this equipment, use good judgment and follow these safe practices:

- ☑ Read and follow these operation and installation instructions when installing, operating, and maintaining this equipment. If these instructions become damaged or unreadable, additional copies are available from the manufacturer.
- ☑ Follow all **SAFETY CODES**.

- ☑ Wear **SAFETY GLASSES** and **WORK GLOVES**.
- ☑ Work only with approved tools and devices.
- ☑ Disconnect and/or lock out power before servicing or maintaining the equipment.
- ☑ Use care when **LOADING**, **UNLOADING**, **RIGGING**, or **MOVING** this equipment.
- ☑ Operate this equipment within design specifications.

- ☑ **OPEN**, **TAG**, and **LOCK ALL DISCONNECTS** before working on equipment. You should remove the fuses and carry them with you.
- ☑ Make sure the equipment and components are properly **GROUNDED** before you switch on power.
- ☑ Use extreme caution when working with your conveying system. **HIGH VACUUM** can be dangerous. Keep body parts, tools, clothing, and debris away from vacuum inlets.
- ☑ When welding or brazing in or around this equipment, make sure **VENTILATION** is **ADEQUATE**. **PROTECT** adjacent materials from flame or sparks by shielding with sheet metal. An approved **FIRE EXTINGUISHER** should be nearby and ready for use if needed.
- ☑ Do not restore power until you remove all tools, test equipment, etc., and the equipment and related components are fully reassembled.
- ☑ Only **PROPERLY TRAINED** personnel familiar with the information in this manual should work on this equipment.

We have long recognized the importance of safety and have designed and manufactured our equipment with operator safety as a prime consideration. We expect you, as a user, to abide by the foregoing recommendations in order to make operator safety a reality.

1-3 Responsibility

These machines are constructed for maximum operator safety when used under standard operating conditions and when recommended instructions are followed in the maintenance and operation of the machine.

All personnel engaged in the use of the machines should become familiar with their operation as described in this manual.

Proper operation of the machine promotes safety for the operator and all workers in its vicinity.

Each individual must take responsibility for observing the prescribed safety rules as outlined. All warning and danger signs must be observed and obeyed. All actual or potential danger areas must be reported to your immediate supervisor.

General Responsibility

No matter who you are, safety is important. Owners, operators and maintenance personnel must realize that every day, safety is a vital part of their jobs.

If your main concern is loss of productivity, remember that production is always affected in a negative way following an accident. The following are some of the ways that accidents can affect your production:

- Loss of a skilled operator (temporarily or permanently)
- Breakdown of shop morale
- Costly damage to equipment
- Downtime

An effective safety program is responsible and economically sound.

Organize a safety committee or group, and hold regular meetings. Promote this group from the management level. Through this group, the safety program can be continually reviewed, maintained, and improved. Keep minutes or a record of the meetings.

Hold daily equipment inspections in addition to regular maintenance checks. You will keep your equipment safe for production and exhibit your commitment to safety.

Please read and use this manual as a guide to equipment safety. This manual contains safety warnings throughout, specific to each function and point of operation.

Operator Responsibility

The operator's responsibility does not end with efficient production. The operator usually has the most daily contact with the equipment and intimately knows its capabilities and limitations.

Plant and personnel safety is sometimes forgotten in the desire to meet incentive rates, or through a casual attitude toward machinery formed over a period of months or years. Your employer probably has established a set of safety rules in your workplace. Those rules, this manual, or any other safety information will not keep you from being injured while operating your equipment.

Learn and always use safe operation. Cooperate with co-workers to promote safe practices. Immediately report any potentially dangerous situation to your supervisor or appropriate person.

REMEMBER:

- **NEVER** place your hands or any part of your body in any dangerous location.
- **NEVER** operate, service, or adjust the conveying system without appropriate training and first reading and understanding this manual.
- **NEVER** try to pull material out of the conveying system with your hands while it is running!
- Before you start the conveying system, check the following:
    - Remove all tools from the conveying system.
    - Be sure no objects (tools, nuts, bolts, clamps, bars) are lying in the area.
- If your conveying system has been inoperative or unattended, check all settings before starting the unit.
- At the beginning of your shift and after breaks, verify that the controls and other auxiliary equipment are functioning properly.
- Keep all safety guards in place and in good repair. **NEVER** attempt to bypass, modify, or remove safety guards. Such alteration is not only unsafe, but will void the warranty on your equipment.
- When changing control settings to perform a different mode of operation, be sure selector switches are correctly positioned. Locking selector switches should only be adjusted by authorized personnel and the keys removed after setting.
- Report the following occurrences **IMMEDIATELY:**
    - unsafe operation or condition
    - unusual conveying system action
    - leakage
    - improper maintenance
    - **NEVER** stand or sit where you could slip or stumble into the conveying system while working on it.

- **DO NOT** wear loose clothing or jewelry, which can be caught while working on the conveying system. In addition, cover or tie back long hair.
- Clean the conveying system and surrounding area **DAILY**, and inspect the machine for loose, missing or broken parts.
- Shut off power to the conveying system when it is not in use. Turn the switch to the **OFF** position, or unplug it from the power source.

Maintenance Responsibility

Proper maintenance is essential to safety. If you are a maintenance worker, you must make safety a priority to effectively repair and maintain equipment.

Before removing, adjusting, or replacing parts on a machine, remember to turn off all electric supplies and all accessory equipment at the machine, and disconnect and lockout electrical and pneumatic power. Attach warning tags to the disconnect switch and air shutoff valve.

When you need to perform maintenance or repair work on a conveying system above floor level, use a solid platform or a hydraulic elevator. If there is a permanently installed catwalk on your conveying system, use it. The work platform should have secure footing and a place for tools and parts. **DO NOT** climb on the conveying system, machines, or work from ladders.

If you need to repair a large component, use appropriate handling equipment. Before you use handling equipment (portable "A" frames, electric boom trucks, fork trucks, overhead cranes) be sure the load does not exceed the capacity of the handling equipment or cause it to become unstable.

Carefully test the condition of lifting cables, chains, ropes, slings, and hooks before using them to lift a load.

Be sure that all non-current carrying parts are correctly connected to earth ground with an electrical conductor that complies with current codes. Install in accordance with national and local codes.

When you have completed the repair or maintenance procedure, check your work and remove your tools, rigging, and handling equipment.

Do not restore power to the conveying system until all persons are clear of the area. **DO NOT** start and run the conveying system until you are sure all parts are functioning correctly.

BEFORE you turn the conveying system over to the operator for production, verify all enclosure panels, guards and safety devices are in place and functioning properly.

Reporting a Safety Defect

If you believe that your equipment has a defect that could cause injury, you should immediately discontinue its use and inform the manufacturer.

The principle factors that can result in injury are failure to follow proper operating procedures (i.e. lockout/tagout), or failure to maintain a clean and safe working environment.

Chapter 2: Functional Description

2-1 Models Covered in This Manual

This manual provides operation, installation, and maintenance instructions for the mechanical components of the conveying system. Model numbers are listed on the serial tag. Make sure you know the model and serial number of your equipment before contacting the manufacturer for parts or service.

Our mechanical components are designed to create vacuum for conveying pelletized, granular, or powder material in a central material handling system. A typical use is as an in-plant distribution system for plastic processing plants. Conveying system mechanical components are sized to meet the specific requirements stated by the Customer at the time of purchase.

2-2 General Description

Our central vacuum systems are as varied as the applications that they service. Tubing and equipment furnished in a specially designed system is intended to convey the material(s) specified at the time of purchase at specific rates and distances.

We can advise you on your system capabilities based on system makeup, distance, material, and desired conveying rates.

Pressure drops in the overall system directly affect system capacity, such as number of material line bends, footage of pipe, Y-tubes, T-tubes, etc.

The less distance, flexible hose, and bends you use on material lines, the better. Keep material lines as straight as possible.

NOTICE ***Vacuum leaks occurring anywhere in your system reduce capacity.***

Basic System Components

A typical conveying system contains the following components:

- Vacuum receiver(s)
- Vacuum pump
- Filter chamber
- Sequence or atmospheric valves
- Controller
- Take-off compartments
- Pickup tubes/wands
- Vacuum and material tubing

Combinations of these components will help you build your system for the application you need.

Basic System Types

Time-Fill Systems

A *time-fill system* conveys material to an on-line vacuum receiver for a pre-set time period. When this interval elapses, the controller conveys material to the next on-line vacuum receiver.

Volume-Fill Systems

A *volume-fill system* conveys material to an on-line vacuum receiver until the material level activates the proximity switch in the vacuum receiver, or a preset time elapses. When either of these conditions occur, the controller conveys material to the next on-line vacuum receiver.

Conveying Distance

Vacuum hoppers and Low Head Separators are installed over the material delivery point.

The Vacuum Power Unit and material pick-up device, however, can be installed some distance from the delivery point. This distance is dependent upon the power unit chosen and the total equivalent feet required to convey the material.

The manufacturer's Engineering Department can advise you on your system's capabilities given the system make-up, distance, material and desired conveying rates.

Equipment Cycle

Our bulk material conveying systems are used for automatic pneumatic handling of most free-flowing, dry, pelletized, powder granular materials. Add a Low Head Separator, and fine powders can be conveyed. Most systems are custom designed using standard components.

A positive displacement blower draws air through the non-reversing valves on the Vacuum Power Unit. (See Figure 9 on page 34).

The vacuum is drawn through a filter chamber to prevent material from reaching the blower.

Signals from the programmable controller shift Sequence-"T" Valves to direct the vacuum through the station being filled to a material pick-up device.

Material is sucked into a pick-up device and through the material tubing to the vacuum hopper or Low Head Separator, mounted or suspended over a storage bin or processing equipment.

When the vacuum hopper is filled or the convey cycle times out, the convey cycle ends. The Vacuum Power Unit immediately shifts into blowback, dumping the material in the vacuum hopper.

The blowback cycle back flushes air through the vacuum tubing to clean the filter chamber.

The blowback feature cleans the filter chamber after each loading cycle and speeds emptying of the vacuum hopper. This operation is continuous and automatic. (See Figure 11 and Figure 14 on page 38 and 47).

The programmable controller automatically shifts the appropriate sequence "T"-valves and starts the loading cycle at the next station in the cycle.

The cycle continues until the programmable controller senses, through level sensors at each station that all stations are filled.

Material characteristics determine the type of equipment needed to properly convey the material.

See Figures 59 and 63 on pages 104 and 107 for typical system configurations.

2-3 Standard Features & Options

SRI/, SSI, CSI Series Inventory Vacuum Receivers

Models: SRI01, SSI03, CSI03
SRI02, SSI06, CSI06
SRI04, SSI11, CSI11

- Brushed stainless steel construction, with stainless steel product contact surfaces.
- Pyrex™ sight glass.
- Receiver capacities of 0.1, 0.2, and 0.4 cu. ft. (2.8, 5.6, and 11.3 liters).
- Ten (10) -mesh stainless steel pellet deflector screen.
- Designed for minimum inventory on molding machine.
- Four-inch (101.6 mm) -sq. flange on 0.1 cu. ft. (2.8 liter) model.
- Seven-inch (177.8 mm) -sq. flange on 0.2 and 0.4 cu. ft. (5.6 and 11.3 liter) models.
- Side inlet/outlet design.
- Removable inlets and outlets, up to 2” O.D. on 0.2 and 0.4 cu. ft (5.6 and 11.3 liter) models; material inlet is check valve-ready.
- Check valve for single-line Y applications.
- Adjustable proximity-type material level sensor (mounted on sight glass): 24 VDC or 115 VAC.

Figure 1: Typical Inventory Vacuum Receiver Exploded View

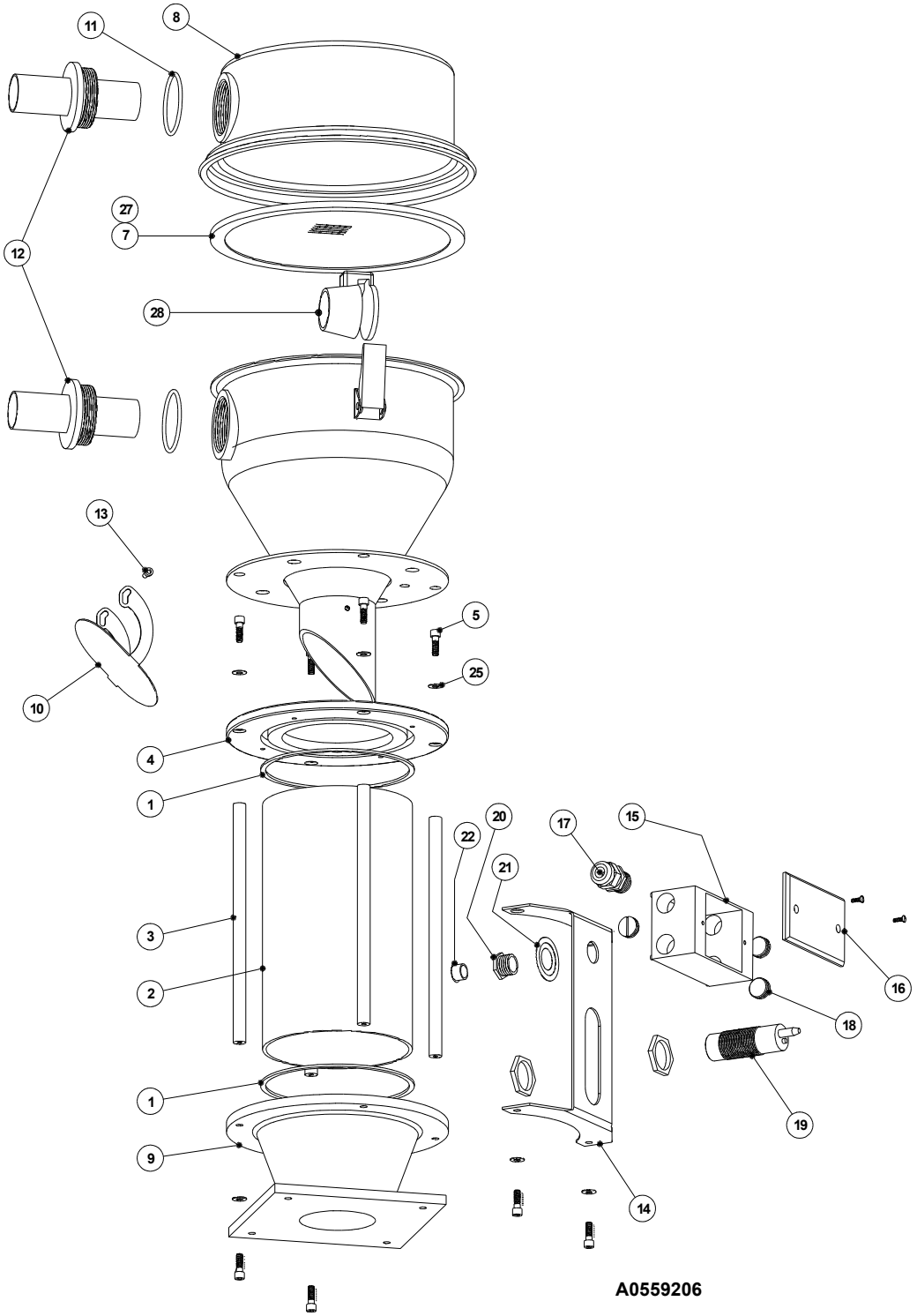
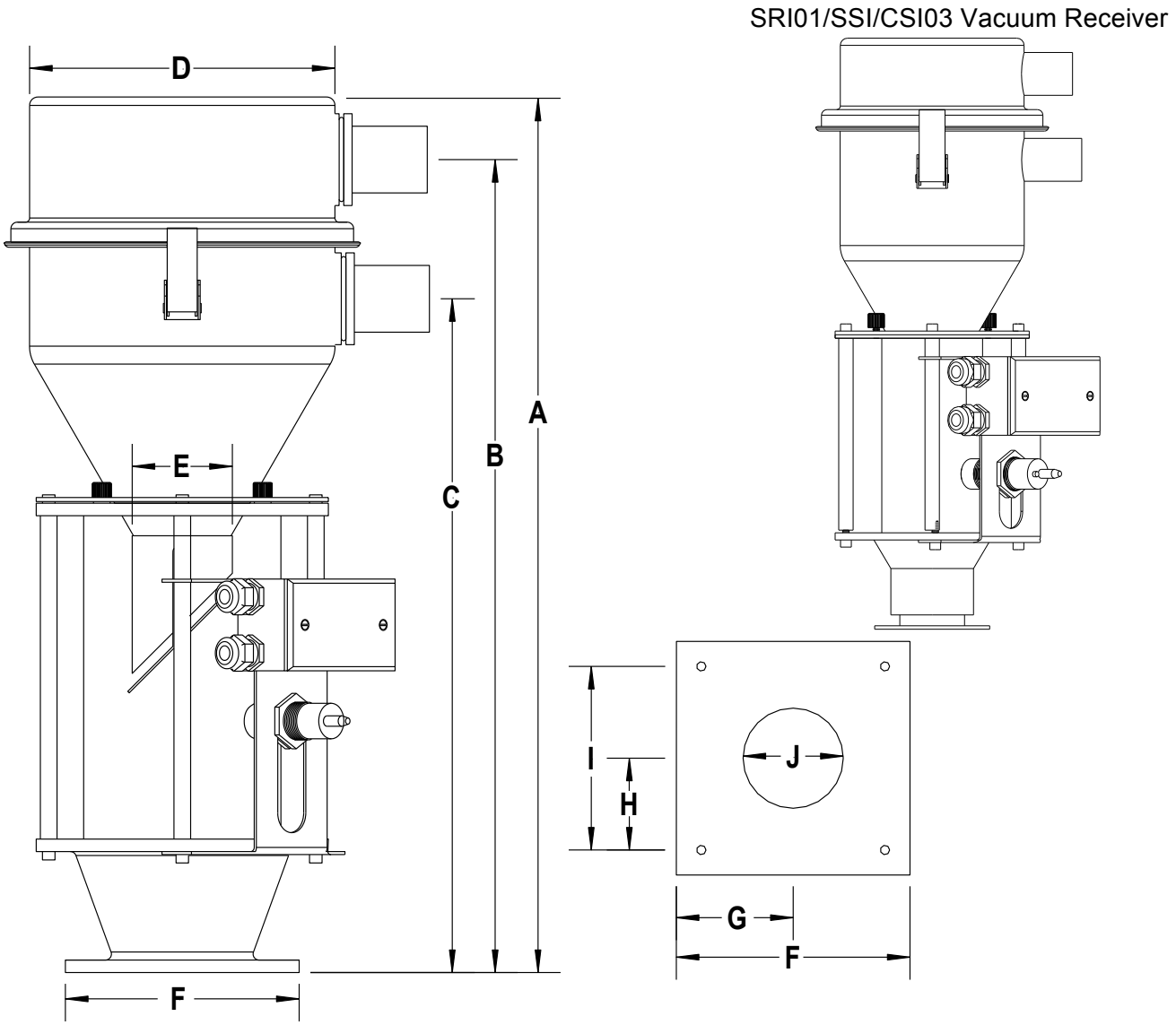


Figure 2: SRI, SSI, CSI Series Inventory Vacuum Receiver Parts List
See Figure 1 on the previous page for parts location.

Item	Model No. SRI/SSI/CSI	Quantity	Part No.	Description
1	SRI01, SSI/CSI03	2	A0553714	GKST,BODY,SIL,SRI/IL01, SSI/IL03, CSI/IL03
	SRI02-04, SSI/CSI06-11	2	A0553722	GSKT,BODY,SIL,SRI/IL02-08, SSI/ILCSI/IL06-23
2	SRI01, SSI/CSI03	1	A0553727	SGLS,PYREX,SRI/IL01, SSI/IL03, CSI/IL03
	SRI02-04, SSI/CSI06-11	1	A0553726	SGLS,PYREX,SRI/IL02-04, SSI/IL06-11, CSI/IL06-11
3	SRI01, SSI/CSI03	4	A0553715	ROD,SUPT,BODY,ALU,SRI/IL01, SSR/IL03, CSR/IL03
	SRI02-04, SSI/CSI06-11	4	A0553723	ROD,SUPT,BODY,ALU,SRI/IL02-04, SSR/IL06-11, CSR/IL06-11
4	SRI01, SSI/CSI03	1	A0553717	PL,MACH,TOP,ALU,SRI/IL01, SSR/IL03, CSR/IL03
	SRI02-04, SSI/CSI06-11	1	A0553725	PL,MACH,TOP,ALU,SRI/IL02-04, SSI/IL06-11, CSI/IL06-11
5	ALL	8	A0553718	SCR,SHC,SS,1/4-20 X 3/4
	SRI01, SSI/CSI03	2	A0556529	SCR,RTRCT,1/4-20,SCO #471162210
6	SRI01, SSI/CSI03	1	A0553741	CONE,WELD,6”ID,SSTL,SRX01, SSI03, CSI03
	SRI01, SSI/CSI03	1	A0553742	CONE,WELD,9”ID,SSTL,SRX02, SSI06, CSI06
	SRI01, SSI/CSI03	1	A0553743	CONE,WELD,9”ID,SSTL,SRX04, SSI11, CSI11
7	SRI01, SSI/CSI03	1	A0556531	FLTR,FLAT,WIRE,6”OD,SRH/I01, SSI03, CSI03
	SRI02-04, SSI/CSI06-11	1	A0556532	FLTR,FLAT,WIRE,9”OD,SRH/I02-04, SSI06-11, CSI06-11
8	SRI01, SSI/CSI03	1	A0556506	CVR,WELD,6”ID,SSTL,SRI/H01, SSI06-11, CSI06-11
	SRI02-04, SSI/CSI06-11	1	A0556507	CVR,WELD,9”ID,SSTL,SRI/H02-04, SSI06-11, CSI06-11
9	SRI01, SSI/CSI03	1	A0553712	BASE,MACH,BODY,ALU,SRI/IL01, SSI/IL03, CSI/IL03
	SRI01, SSI/CSI03	2	A0553728	ORNG,SILC,2.234ID X 0.139,CS
	SRI01, SSI/CSI03	1	A0553710	BASE,MACH MOUNT,THRT,SRI/IL01, SSI/IL03, CSI/IL03
	SRI02-04, SSI/CSI06-11	1	A0553720	BASE,MACH,BODY,ALU,SRI/IL02-04, SSI06-11, CSI06-11
10	SRI01, SSI/CSI03	1	A0556503	FLAP,DISCHARGE,SS,SRX01, SSI03, CSI03
	SRI02-04, SSI/CSI06-11	1	A0553731	FLAP,DISCHARGE,SS,SRX02-04, SSI06-11,CSI06-11
11	SRI02-04, SSI/CSI06-11	2	A0553728	ORNG,SIL,2.234ID X 0.139 THK
12	SRI02-04, SSI/CSI06-11	2	A0556504	IN/OUT,SRX02-04,AL,1.50
	SRI02-04, SSI/CSI06-11	2	A0556505	IN/OUT,SRX02-04,AL,2.00
	SRI02-04, SSI/CSI06-11	2	A0555796	IN/OUT,SRX02-04,AL,2.50
13	ALL	2	A0556822	SCR,CAP,HEX,SOC,HD,10-32 X 1/2
14	SRI01, SSI/CSI03	1	A0553713	BRKT,JBOX/PROX,ALU,SRI/IL01, SSI/IL03, CSI/IL03
	SRI02-04, SSI/CSI06-11	1	A0553721	BRKT,JBOX/PROX,ALU,SRI/IL02-04, SSI/IL06-11, CSI/IL06-11
15	ALL	1	A0541036	BOX,GANG,SNGLE,4X2X2,UL WETLOC
16	ALL	1	A0541037	BOX,GANG,SNGLE,COVER,BLNK,GSKT
17	ALL	1	A0541039	CORD,GRIP,1/2”,.270-.480 #3231
18	ALL	3	A0541038	BOX,GANG,PLUG,1/2” NPT,UL
19	SRI01, SSI/CSI03	1	A0542138	SW,PROX,CAP,110VAC,30MM,N.C.
	SRI01, SSI/CSI03	1	A0556548	SW,PROX,CAP,DC,30MM,NO/NC,NPN,3-WIRE
	SRI02, SSI/CSI06	1	A0548191	SW,PROX,AC/DC,18MM,NC,2 WIRE
	SRI02, SSI/CSI06	1	A0548190	SW,PROX,DC,18MM,NC,NPN,3 WIRE
	SRIL04, SSI/CSI11	1	A0556537	SW,PROX,E0MM,DC,#ED3025NPAPL
20	ALL	1	A0003217	CDUT,NIPPLE,1/2”,#CN 50
21	ALL	1	A0003254	RDUC,WSHR,.75”X.50” STEEL
22	ALL	1	A0548359	PLUG,HEYCO,BLK,5/8”,#2663

Item	Model No. SRI/SSI/CSI	Quantity	Part No.	Description
25	SRI02-04, SSI/CSI06-11	8	W00002373	WASH,FLAT,WI,3/16",100PCS/#
26	SRI02-04, SSI/CSI06-11	1	A0556529	SCR,RTRCT,1/4-20,SCO #471162210
27	SRI01, SSI/CSI03	1	A0556820	GSKT,U-CHNL,NPRN,.38X.20X.06W
28	SRI02-04, SSI/CSI06-11	1	W00000990	VLV,CHECK,INT,1.5"TUBE,POLY
	SRI02-04, SSI/CSI06-11	1	A0559420	CV,URETHANE,2.00ID
29	ALL	2	A0536966	CONN,WIRE NUT,IDEAL #A0/A1
30	SRI02-04, SSI/CSI06-11	2	W00532685	GSKT,O-RING,PARKER #2-017
31	SRI01, SSI/CSI03	1	A0565924	FLTR,FLAT,1.52OD,WIRE10,MESH
32	SRI01, SSI/CSI03	1	A0556538	SW,PROX,CAP,AC,30MM,NO/NC 2-WIRE
33	SRI01, SSI/CSI03	1	64062	SW,PRX,CAP,DC,30MM,NO/NC,PNP,3-WIRE
34	SRI01, SSI/CSI03	1	A0559419	CV,URETHANE,1.50ID
35	SRI01, SSI/CSI03	1	A0559425	CV,URETHANE,2.25ID
36	SRI01, SSI/CSI03	1	A0559421	CV,URETHANE,2.50ID
37	SRI01, SSI/CSI03	1	A0559422	CV,URETHANE,3.00ID
38	SRI02, SSI/CSI06	1	A0565925	FLTR,FLAT,10.25OD,WIRE,10MESH
39	SRI02, SSI/CSI06	1	A0540240	GSKT,U-CHNL,NPRN,.56X.19X.06W
40	SRI02, SSI/CSI06	1	64062	SW,PROX,CAP,DC,30MM,NO/NC,PNP,3-WIRE
41	SRI02, SSI/CSI06	1	A0556538	SW,PROX,CAP,AC,30MM,NO/NC 2-WIRE
42	SRI02, SSI/CSI06	1	A0559419	CV,URETHANE,1.50ID
43	SRI02, SSI/CSI06	1	A0559425	CV,URETHANE,2.25ID
44	SRI02, SSI/CSI06	1	A0559421	CV,URETHANE,2.50ID
45	SRI02, SSI/CSI06	1	A0559422	CV,URETHANE,3.00ID
46	SRI04, SSI/CSI11	1	A0559430	IN/OUT,SRX02-04,AL,2.25
47	SRI04, SSI/CSI11	1	A0555796	IN/OUT,SRX02-04,AL,2.50

Figure 3: SRI, SSI, CSI Series Stainless Steel Inventory Vacuum Receiver Dimensions



Model SRI/SSI/CSI	Unit size cu. ft.	Dimensions in inches A	B	C	D	E	F -sq.	G -sq.	H -sq.	I -sq. ①	J
01, 03	0.1	21¼"	20"	16⅝"	6⅜"	1¾"	4"	2"	1¼"	2½"	2"
02, 06	0.2	25⅝"	23¾"	19½"	9⅛"	3"	7"	3½"	2¾"	5½"	3"
04, 11	0.4	31½"	29⅝"	25½"	9⅛"	3"	7"	3½"	2¾"	5½"	3"

Model SRI/SSI/CSI	Unit size liters	Dimensions in *cm* A	B	C	D	E	F -sq.	G -sq.	H -sq.	I -sq. ①	J
01, 03	*2.8*	*54.0 cm*	*50.8 cm*	*42.2 cm*	*16.2 cm*	*4.4 cm*	*10.2 cm*	*5.1 cm*	*3.2 cm*	*6.4 cm*	*5.1 cm*
02, 06	*5.6*	*65.1 cm*	*60.3 cm*	*49.5 cm*	*23.2 cm*	*7.6 cm*	*17.8 cm*	*8.9 cm*	*6.9 cm*	*13.9 cm*	*7.6 cm*
04, 11	*11.3*	*80.0 cm*	*75.2 cm*	*64.8 cm*	*23.2 cm*	*7.6 cm*	*17.8 cm*	*8.9 cm*	*6.9 cm*	*13.9 cm*	*7.6 cm*

① 9⁹⁄₃₂"/0.28125" (*7.14 mm*) -diameter holes in four (4) places, equally spaced.

Pumps

VTP, SPD, CPD Series Models: 5, 7.5, 10, 15, 20, 30

- Support base.
- Positive displacement blower.
- 3-phase high efficiency TEFC electric motor.
- 5, 7.5, 10, 15, 20, or 30 horsepower (3.75, 5.63, 7.5, 11.25, 15 or 22.5 kW).
- Standard voltage is 230-460/3/60. 380-415/3/50 and 575/3/60 are optional.
- Adjustable motor base.
- Compressed air-operated mechanical high-vacuum relief valve.
- Vacuum gauge.
- Vacuum switch for high vacuum protection.
- Junction box with motor starter, including overload protection.
- Discharge silencer.

Options

- Fused disconnect in the junction box.
- Distributed I/O capability.
- Sound enclosure.
- Premium-efficiency motors.
- Re-sheave for elevation.
- 24VDC or 120 AC controls.

Figure 4:

Spare Parts List model VTP, SPD, CPD 5:

Model	Part Number	Description
5	W00052043	BLOW,ROOTS,33RAI,5HP VAC UNIT
5	W00018378	VLV,ATMOS,ASSY,2”
5	A0547953	SW,VAC,SET @ 14HG
5	W00017812	GSKT,AV/SV2.50-3.00,VELMOID
5	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CND CONN
5	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=017,1/25NPT,CND CONN
5	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS

Spare Parts List model VTP, SPC, CPD 7.5:

Model	Part Number	Description
7.5	W00052044	BLOW,ROOTS,45RAI,7.5-10HP
7.5	W00050866	VLV,ATMOS,ASSY,2.5”
7.5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
7.5	A0547953	SW,VAC,SET @ 14HG
7.5	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=015,NPT,CND CONN
7.5	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=017,1/2NPT,CND CONN
7.5	W00017529	CYL,AIR,S1288,(2)1/4-20HOLES,CYL,AIR,13818A
7.5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS

Spare Parts List model VTP, SPC, CPD10:

Model	Part Number	Description
10	W00052044	BLOW,ROOTS,45RAI,7.5-10HP
10	W00050867	VLV,ATMOS,ASSY,3.0”
10	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
10	A0547953	SW,VAC,SET @ 14HG
10	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,NPT,CND CONN
10	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=.17,1/2NPT,CND CONN
10	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
10	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS

Spare Parts List model VTP, SPC, CPD15:

Model	Part Number	Description
15	W00052045	BLOW,ROOTS,56RAI,15HP,VAC UNIT
15	W00050867	VLV,ATMOS,ASSY,3”,10-15HP
15	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
15	A0547953	SW,VAC,SET @ 14HG
15	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=.17,1/2NPT,CND CONN
15	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,NPT,CND CONN
15	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
15	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS

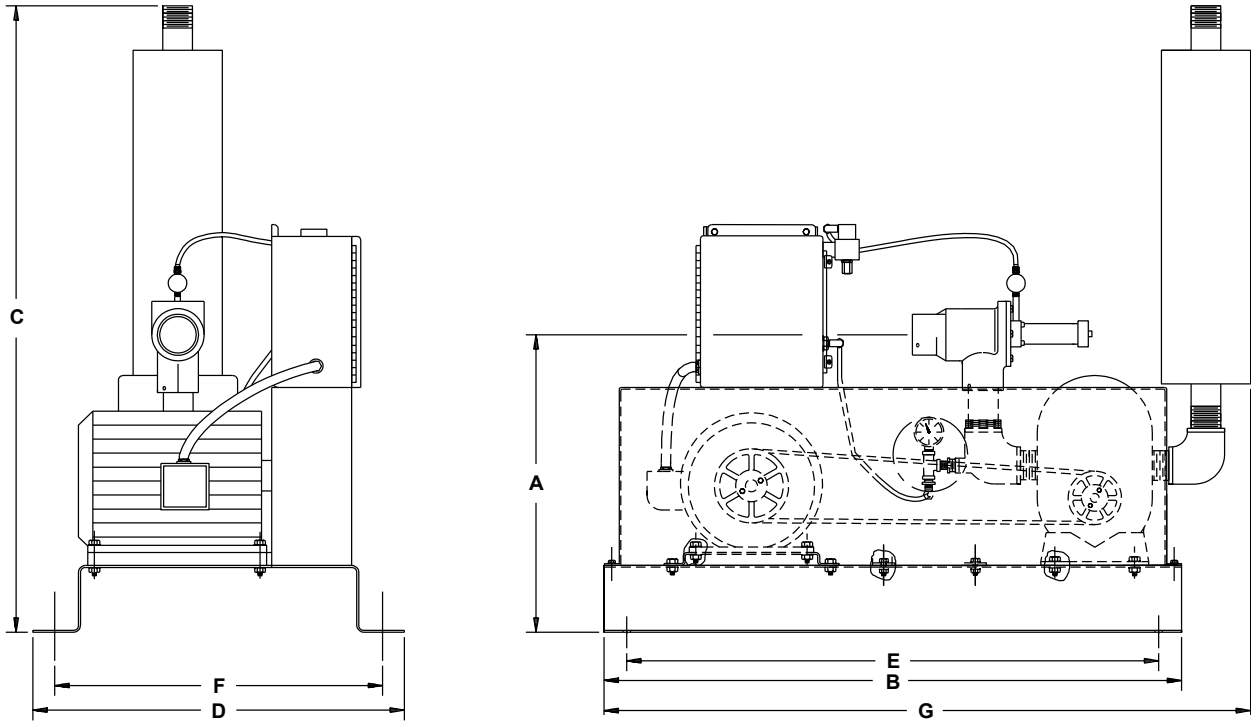
Spare Parts List model VTP, SPC, CPD20:

Model	Part Number	Description
20	W00052046	BLOW,ROOTS,68RAI,20HP,VAC UNIT
20	A0538211	VLV,ATMOS,ASSY,4.5”
20	W00018017	GSKT,VELOMOID,25-30HP NON –R VL
20	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
20	A0547953	SW,VAC,SET @ 14HG
20	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,NPT CND CONN
20	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=.17,1/2NPT CND CONN
20	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
20	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS

Spare Parts List model VTP, SPC, CPD30:

Model	Part Number	Description
30	W00052046	BLOW,ROOTS,88RAI,30 HP VAC UNIT
30	A0538211	VLV,ATMOS,ASSY,4.5”
30	W00018017	GSKT,VELOMOID,25-30HP NON –R VL
30	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
30	A0547953	SW,VAC,SET @ 14HG
30	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CND CONN
30	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=.17,1/2NPT,CND CONN
30	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
30	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS

Figure 5: Model 5-30 Series Pump Dimensions



Model: VTP/SPD/CPD	Unit size	Dimensions (inches)						
	hp	A	B	C	D	E	F	G
5	5	20	42.5	47	25.75	39.5	23.5	47.5
7.5	7.5	21	42.5	50	25.75	39.5	23.5	48
10	10	21	56	50	25.75	53	31	48
15	15	25	56	62	32.5	53	31	57
20	20	32	56	65	32.5	53	31	60
30	30	38	50	85	37.25	48.25	35.75	69.3

Model: VTP/SPD/CPD	Unit size	Dimensions (cm)						
	KW	A	B	C	D	E	F	G
5	3.75	51	108	109	64	100	60	117
7.5	5.63	53	108	127	64	100	60	122
10	7.50	53	142	127	82	134	79	155
15	11.25	63	142	162	82	134	79	162
20	15.00	81	142	178	82	134	79	167
30	22.38	97	127	216	95	123	91	176

Pumps

APD,SPD,CPD Series Models: 5, 7.5, 10, 15

- Support base.
- Positive displacement blower.
- 3-phase high efficiency TEFC electric motor.
- 5, 7.5, 10, or 15 horsepower (3.75, 5.63, 7.5, or 11.25 kW).
- Standard voltage is 230-460/3/60. 380-415/3/50 and 575/3/60 are optional.
- Adjustable motor base.
- Compressed air-operated mechanical high-vacuum relief valve.
- Vacuum gauge.
- Vacuum switch for high vacuum protection.
- Junction box with motor starter, including overload protection.
- Discharge silencer.

Options

- Fused disconnect in the junction box.
- Distributed I/O capability.
- Sound enclosure.
- Premium-efficiency motors.
- Re-sheave for elevation.
- 24VDC or 120 AC controls.

Figure 6: Spare Parts List APD, SPD, CPD

List No.	Qty.	Model No. APD/SPD/CPD	Part No.	Description
1	1	5	A0571182	BLOWER
2	2	5	W00000145	O-RING
3	1	5	W00013524	VALVE PLUNGER
4	1	5	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
5	1	5	W00052176	MTR,5HP,TEFC,1800RPM,230/460,184T FRAME,50/60HZ
6	1	5	W00052800	MOTOR, 5 HP 575 V
7	1	5	A0538247	MOTOR SHEAVE (60 HZ)
8	1	5	A0547083	MOTOR BUSHING (60 HZ)
9	1	5	A0538259	BLOWER SHEAVE (60 HZ)
10	1	5	A0573828	BLOWER BUSHING (60 HZ)
11	2	5	W00011500	PUMP BELT (60 HZ)
7	1	5	A0573834	MOTOR SHEAVE (50 HZ)
8	1	5	A0547083	MOTOR BUSHING (50 HZ)
9	1	5	A0538252	BLOWER SHEAVE (50 HZ)
10	1	5	W00052174	BLOWER BUSHING (50 HZ)
11	2	5	A0573868	PUMP BELT (50 HZ)
12	1	5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
13	1	5	A0547953	SW,VAC,SET @ 14HG
14	1	5	W00018378	SUBASSY,AV2.00
15	1	5	A0571183	BLO,PD,45URAIJ,HORT,2.5NPT,LHD
16	1	5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
17	1	5	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
1	1	7.5	A0571183	BLO,PD,45URAIJ,HORT,2.5NPT,LHD
2	1	7.5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
3	1	7.5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16 CS
4	2	7.5	W00001045	O-RING
5	1	7.5	W00052179	MOTOR,7.5HP 208/230/460 V
6	2	7.5	W00052801	MOTOR,7.5 HP 575 V
7	1	7.5	A0573829	MOTOR SHEAVE (60 HZ)
8	1	7.5	W00011491	MOTOR BUSHING (60 HZ)
9	1	7.5	A0534549	BLOWER SHEAVE (60 HZ)
10	1	7.5	W00052178	BLOWER BUSHING (60 HZ)
11	2	7.5	W00011500	PUMP BELT (60 HZ)
7	1	7.5	A0538247	MOTOR SHEAVE (50 HZ)
8	1	7.5	W00054462	MOTOR BUSHING (50 HZ)
9	1	7.5	A0573945	BLOWER SHEAVE (50 HZ)
10	1	7.5	A0538249	BLOWER BUSHING (50 HZ)
11	2	7.5	W00011770	PUMP BELT (50 HZ)
12	1	7.5	A0547953	SW,VAC,SET @ 14HG
13	1	7.5	W00050866	SUBASSY,AV2.50
14	1	7.5	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
15	1	7.5	W00052176	MTR,5HP,TEFC,1800RPM,230/460,184T FRAME,50/60 HZ

Spare Parts List APD, SPD, CPD (Cont'd.)

List No.	Qty.	Model No. APD/SPD/CPD	Part No.	Description
1	1	10	A0571183	BLO,PD,45URAIJ,HORT,2.5NPT,LHD
2	1	10	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
3	1	10	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
4	2	10	W00001045	O-RING
5	1	10	W00016464	MTR,10HP,TEFC,1800RPM,230/460,215T FRAME
6	1	10	W00052802	MOTOR 10 HP 575 V
7	1	10 - 2.5 LINES	A0534550	MOTOR SHEAVE (60 HZ)
8	1	10 - 2.5 LINES	W00011491	MOTOR BUSHING (60 HZ)
9	1	10 - 2.5 LINES	A0538248	BLOWER SHEAVE (60 HZ)
10	1	10 - 2.5 LINES	A0538249	BLOWER BUSHING (60 HZ)
11	2	10 - 2.5 LINES	W00011500	PUMP BELT (60 HZ)
7	1	10 - 2.5 LINES	A0573834	MOTOR SHEAVE (50 HZ)
8	1	10 - 2.5 LINES	W00054462	MOTOR BUSHING (50 HZ)
9	1	10 -2 .5 LINES	A0538247	BLOWER SHEAVE (50 HZ)
10	1	10 - 2.5 LINES	A0547933	BLOWER BUSHING (50 HZ)
11	2	10 - 2.5 LINES	A0547043	PUMP BELT (50 HZ)
7	1	10 - 3.0 LINES	A0538247	MOTOR SHEAVE (60 HZ)
8	1	10 - 3.0 LINES	W00054462	MOTOR BUSHING (60 HZ)
9	1	10 - 3.0 LINES	A0538248	BLOWER SHEAVE (60 HZ)
10	1	10 - 3.0 LINES	A0538249	BLOWER BUSHING (60 HZ)
11	2	10 - 3.0 LINES	W00011500	PUMP BELT (60 HZ)
7	1	10 - 3.0 LINES	A0538258	MOTOR SHEAVE (50 HZ)
8	1	10 - 3.0 LINES	W00054462	MOTOR BUSHING (50 HZ)
9	1	10 - 3.0 LINES	A0538259	BLOWER SHEAVE (50 HZ)
10	1	10 - 3.0 LINES	W00052178	BLOWER BUSHING (50 HZ)
11	2	10 - 3.0 LINES	A0547043	PUMP BELT (50 HZ)
12	1	10	A0547953	SW,VAC,SET @ 14HG
13	1	10	W00050866	SUBASSY,AV2.50
14	1	10	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

Spare Parts List APD, SPD, CPD (Cont'd.)

List No.	Qty.	Model No. APD/SPD/CPD	Part No.	Description
1	1	15	A0571183	BLO,PD,45URAIJ,HORT,2.5NPT,LHD
2	2	15	W00001738	O-RING
3	1	15	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
4	1	15	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
5	1	15	W00016466	MTR,15HP,TEFC,1800RPM,230/460,254T FRAME
6	1	15	W00052803	MOTOR 15 HP 575 V
7	1	15 - 3.0 LINES	A0573834	MOTOR SHEAVE (60 HZ)
8	1	15 - 3.0 LINES	W00016479	MOTOR BUSHING (60 HZ)
9	1	15 - 3.0 LINES	A0534550	BLOWER SHEAVE (60 HZ)
10	1	15 - 3.0 LINES	W00052178	BLOWER BUSHING (60 HZ)
11	2	15 - 3.0 LINES	A0547043	PUMP BELT (60 HZ)
7	1	15 - 3.0 LINES	A0573829	MOTOR SHEAVE (60 HZ)
8	1	15 - 3.0 LINES	W00011495	MOTOR BUSHING (60 HZ)
9	1	15 - 3.0 LINES	A0534549	BLOWER SHEAVE (60 HZ)
10	1	15 - 3.0 LINES	W00052178	BLOWER BUSHING (60 HZ)
11	2	15 - 3.0 LINES	A0547043	PUMP BELT (60 HZ)
5	1	15 - 3.0 LINES	A0555870	MOTOR 5 HP 208/230/460 V (50 HZ ONLY)
6	1	15 - 3.0 LINES	A0555875	MOTOR 15HP 575 V (50 HZ ONLY)
7	1	15 - 3.5 LINES	A0573834	MOTOR SHEAVE (60 HZ)
8	1	15 - 3.5 LINES	W00016479	MOTOR BUSHING (60 HZ)
9	1	15 - 3.5 LINES	A0573829	BLOWER SHEAVE (60 HZ)
10	1	15 - 3.5 LINES	W00052178	BLOWER BUSHING (60 HZ)
11	2	15 - 3.5 LINES	A0547043	PUMP BELT (60 HZ)
7	1	15 - 3.5 LINES	A0534550	MOTOR SHEAVE (60 HZ)
8	1	15 - 3.5 LINES	W00011495	MOTOR BUSHING (60 HZ)
9	1	15 - 3.5 LINES	A0534549	BLOWER SHEAVE (60 HZ)
10	1	15 - 3.5 LINES	W00052178	BLOWER BUSHING (60 HZ)
11	2	15 - 3.5 LINES	A0547043	PUMP BELT (60 HZ)
5	1	15 - 3.5 LINES	A0555870	MOTOR 15 HP 208/230/460 V (50 HZ ONLY)
6	1	15 - 3.5 LINES	A0555875	MOTOR 15 HP 575 V (50 HZ ONLY)
7	1	15	A0547953	SW, VAC, SET @ 14HG
8	1	15	W00050867	SUBASSY,AV3.00
9	1	15	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
12	1	5/7.5/10/15	A0069307	POLY TUBING
13	1	5/7.5/10/15	A0547079	VACUUM GAUGE
14	1	5/7.5/10/15	35085K	STRAIGHT FITTING
15	1	5/7.5/10/15	35086K	ELBOW FITTING
16	1	5/7.5/10/15	A0543268	FTG,BR,BU,0.25 NPT X 1/8 NPT
17	1	5/7.5/10/15	A0543269	FTG,BR,TE,0.25 NPT
18	1	5/7.5/10/15	A0532231	NIP,BR,0.25NPT X 0.88 LG,CL
19	1	5/7.5/10/15	W00013961	AIR REGULATOR
20	1	5/7.5/10/15	W00017552	CYLINDER GASKET SEAL KIT
20	1	5/7.5/10/15	W00017688	AIR CYLINDER
21	1	5/7.5/10/15	A0571250	SOLENOID VALVE ,3 WAY, 115 VAC, 1/8 NPT
21	1	5/7.5/10/15	A0571252	SOLENOID VALVE,3 WAY,24 VDC,1/8 NPT
22	1	5/7.5/10/15	A0573982	SYNTHETIC OIL GALLON ISO-V-320
22	1	5/7.5/10/15	214.00002.00	SYNTHETIC OIL QUART ISO-VG-320
22	1	5/7.5/10/15	214.00004.00	SYNTHETIC OIL CASE ISO-VG-320
23	1	5/7.5/10/15	A0015492	NIPPLE FITTING
24	1	5/7.5/10/15	A0562421	CONDUIT FITTING STRAIGHT
25	1	5/7.5/10/15	A0562419	CONDUIT FITTING ELBOW
26	3 FT.	5/7.5/10/15	A0562430	CONDUIT FLEXIBLE

Figure 7: Reversing Valve Assembly Spare Parts Drawing

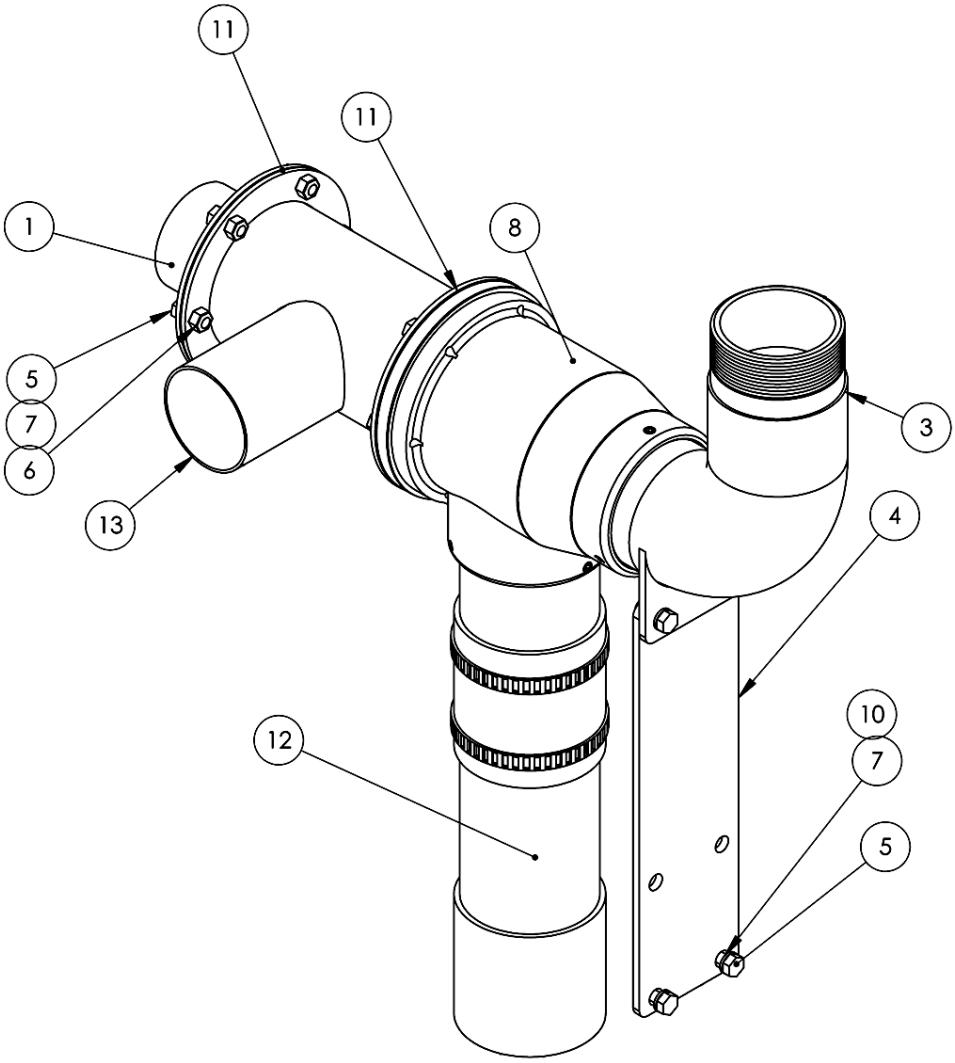
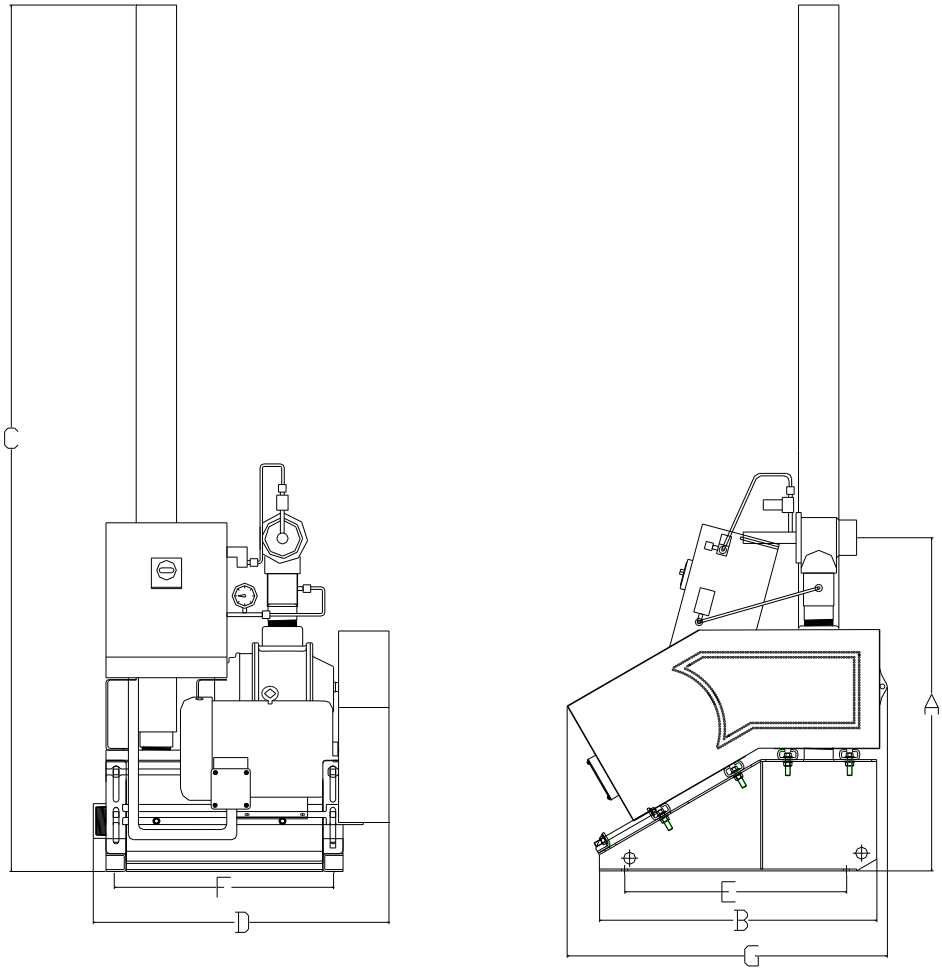


Figure 8: APD, SPD, CPD Reversing Valve Option Spare Parts List

Item No.	Model No. APD/SPD/CPD	Qty.	Part No.	Description
1	5	1	A0573974	ADPTR,CS,2.00 OD,XPD 5 W/BB
	7.5-10		A0573975	ADPTR,CS,2.50OD,XPD 7.5-10 W/BB
	15		A0573976	ADPTR,CS,3.00OD,XPD 15 W/BB
2	5-15	1	A0573980	PIPE,DSCH,UPR,XPD 5-15 W/BB
3	5-15	1	A0573981	EL,AL,3”OD X 2.5NPT,XPD 5-15 W/BB
4	5-15	1	A0573987	BRKT,SUPT,DSCH,XPD 5-15HP W/BB
5	5-15	10	W00013527	SCR,HHC,PS,1/4-20 X 0.63LG
6	5-15	6	A0069206	NUT,HEX,PS,1/4-20
7	5-15	10	A0101190	WSHR,LOCK,1/4
8	5-15	1	A0573983	VLV,ASSY,REV,XPD 5-15,3”CONN
9	5-15	3	35086K	FTG,TBG,90,1/8NPT X 1/4TBG
10	5-15	4	A0553322	NUT,RVT,PS,1/4-20
11	5-15	2	W00017812	GASKET
12	5	1	892.00305.00	PIPE,DSCH,LWR,XPD 5W/BB
	7.5-15		892.00373.00	PIPE,DSCH,LWR,XPD 7.5-15 W/BB
13	5	1	A0573977	INL,VAC,2.0OD,XPD 5W/BB
	7.5-10		A0573987	INL,VAC,2.0OD,XPD 5W/BB
	5		A0573979	INC,VAC,3.00OD,XPD 10-3”/15 W/BB

Figure 9: Positive Displacement Pump Dimensions



Model APD/SPD/CPD	Unit size hp	Dimensions (inches)						
		A	B	C	D	E	F	G
5	5	33	27.5	85.82	29	22	21.75	31.75
7.5	7.5							
10	10							
15	15							

Model APD/SPD/CPD	Unit size kW	Dimensions (cm)						
		A	B	C	D	E	F	G
5	3.75	84	70	218	74	56	55	81
7.5	5.6							
10	7.5							
15	11.25							

Blowback Pumps

VTPB, SPDB, CPDB Series Models: 5, 7.5, 10, 15, 25, 30

- Compressed air-operated blowback and vacuum valves with high-vacuum relief.
- Mechanical high-vacuum relief valve.
- Support base.
- Positive displacement blower.
- Three (3) -phase high efficiency TEFC electric motor.
- 5, 7.5, 10, 15, 25, or 30 horsepower (3.75, 5.63, 7.5, 11.25, 18.75, or 22.5 kW)
- Standard 230-460/3/60. 380-415/3/50. 575/3/60 is optional.
- Adjustable motor base.
- Vacuum gauge.
- Vacuum switch for high vacuum protection.
- Junction box with motor starter, including overload protection.
- Discharge silencer.

Options

- Fused disconnect in the junction box.
- Distributed I/O capability.
- Sound enclosure.
- Efficiency motors available.
- Re-sheave for elevation.
- 24VDC or 120VAC controls.

Figure 10: Spare Parts List model APDB, SPDB, CPDB

Spare Parts List model APDB, SPDB, CPDB5:

Model	Part Number	Description
5	A0547953	SW,VAC,SET @ 14HG
5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
5	W00052176	MTR,5HP,TEFC,1800RPM,230/460,185T FRAME,50/60HZ
5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
5	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
5	A0573983	VLV,ASSY,REV,XPD5-15HP,3.00” CONN
5	W00052043	BLO,PD,33URAI,VERT,2.0NPT,BHD
5	732.00224.00	VLV,SOL,DUAL3WAY,1/4,115VAC
5	732.00225.00	VLV,SOL,DUAL3WAY,1/4,24VDC,NC

Spare Parts List model APDB, SPDB, CPDB7.5:

Model	Part Number	Description
7.5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
7.5	W00052179	MTR,7.5,TEFC,1800RPM,230/460,213T FRAME
7.5	A0547953	SW,VAC,SET @ 14HG
7.5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
7.5	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
7.5	A0573983	VLV,ASSY,REV,XPD5-15,3.00”,CONN
7.5	W00052044	BLO,PD,45URAI,VERT,2.5NPT,BHD
7.5	732.00225.00	VLV,SOL,DUAL 3WAY,1/4,24VDC,NC
7.5	732.00224.00	VLV,SOL,DUAL 3WAY,1/4.115VAC

Spare Parts List model APDB, SPDB, CPDB10:

Model	Part Number	Description
10	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
10	W00015710	GSKT,CPRSN,CPLG,3.00T,3BLT,BLK
10	W00016464	MTR,10HP,TEFC,1800RPM,230/460,215T FRAME
10	A0547953	SW,VAC,SET @ 14HG
10	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
10	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
10	A0573893	VLV,ASSY,REV,XPD5-15,3.00” CONN
10	732.00224.00	VLV,SOL,DUAL 3WAY,1/4,115VAC
10	732.00225.00	VLV,SOL,DUAL 3WAY,1/4,24VDC,NC
10	W00052044	BLO,PD,45URAI,VERT,2.5NPT,BHD

Spare Parts List model APDB, SPDB, CPDB15:

Model	Part Number	Description
15	A0547953	SW,VAC,SET @ 14HG
15	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
15	W00016466	MTR,15HP,TEFC,1800RPM,230/460,254T FRAME
15	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
15	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
15	A0573983	VLV,ASSY,REV,XPD5-15,3.00" CONN
15	732.00225.00	VLV,SOL,DUAL 3WAY,1/4,24VDC,NC
15	732.00224.00	VLV,SOL,DUAL 3WAY,1/4,115VAC
15	W00052045	BLO,PD,56URAI,4.0NPT,BHD

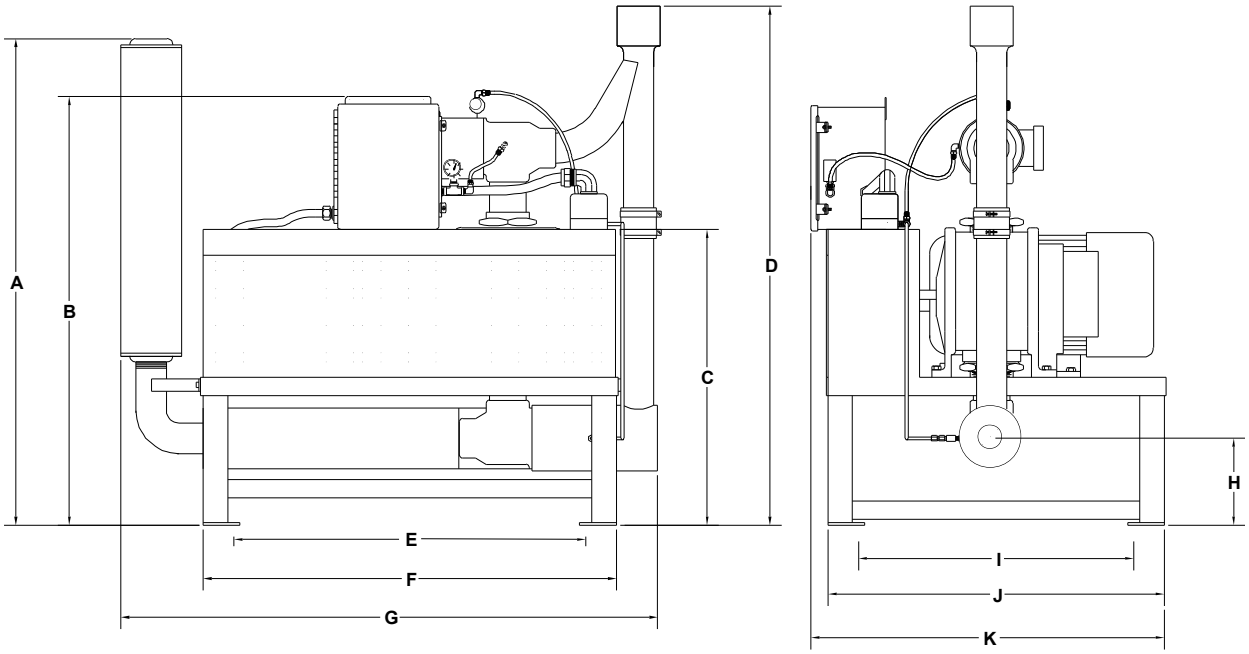
Spare Parts List model APDB, SPDB, CPDB25:

Model	Part Number	Description
25	A0547953	SW,VAC,SET @ 14HG
25	W000033002	MTR,25HP,TEFC,1800RPM,230/460 284T FRAME,HOSTILE DUTY
25	W00018080	VLV,VTPB20-30,LOWR
25	W00018081	VLV,VTPB20-30,UPR
25	W00018017	GSKT,VELOMOID,25-30HP,NON-R VL
25	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
25	W00018152	FLTR,VTPB20-30,INL
25	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
25	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
25	732.00224.00	VLV,SOL,DUAL 3WAY,1/4,115VAC
25	732.00224.00	VLV,SOL,DUAL 3WAY,1/4,24VDC,NC

Spare Parts List model APDB, SPDB, CPDB30:

Model	Part Number	Description
30	A0547953	SW,VAC,SET @ 14HG
30	W00018017	GSKT,VELOMOID,25-30HP NON-R VL
30	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
30	W00018080	VLV,VTPB20-30,LOWR
30	W00018081	VLV,VTPB20-30,UPR
30	W00018152	FLTR,VTPB20-30,INL
30	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
30	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A
30	732.00224.00	VLV,SOL,DUAL 3WAY,1/4,115VAC
30	732.00225.00	VLV,SOL,DUAL 3WAY,1/4,24VDC,NC
30	W00052047	BLO,PD,412RAM,HORT,6.0FLG,LHD

Figure 11: VTPB, SPDB, CPDB 5-30 Series Blowback Pump Dimensions



Model VTPB/SPDB/ CPDB	Unit size	Dimensions (inches)										
	hp	A	B	C	D	E	F	G	H	I	J	K
5	5	40	35	24	42.5	29	34	44	7	22.5	27.5	29
7.5	7.5	40	35	24	42.5	29	34	44	7	22.5	27.5	29
10	10	40	35	24	42.5	29	34	44	7	22.5	27.5	29
15	15	40	35	24	42.5	29	34	44	7	22.5	27.5	29
25	25	80	60	39	74	42.5	46	65	9	31.5	35	32
30	30	80	60	39	74	42.5	46	65	9	31.5	35	32

Model VTPB/SPDB/ CPDB	Unit size	Dimensions (cm)										
	kW	A	B	C	D	E	F	G	H	I	J	K
5	3.75	101	89	61	108	73	86	111	18	57	70	73
7.5	5.63	101	89	61	108	73	86	111	18	57	70	73
10	7.50	101	89	61	108	73	86	111	18	57	70	73
15	11.25	101	89	61	108	73	86	111	18	57	70	73
25	18.75	203	152	101	188	108	117	166	23	80	89	81
30	22.50	203	152	101	188	108	117	166	23	80	89	81

Blowback Pumps

APDB, SPDB, CPDB Series Models: 5, 7.5, 10, 15

- Compressed air-operated blowback and vacuum valves with high-vacuum relief.
- Mechanical high-vacuum relief valve.
- Support base.
- Positive displacement blower.
- Three (3) -phase high efficiency TEFC electric motor.
- 5, 7.5, 10, or 15 horsepower (3.75, 5.63, 7.5, or 11.25 kW)
- Standard 230-460/3/60. 380-415/3/50. 575/3/60 is optional.
- Adjustable motor base.
- Vacuum gauge.
- Vacuum switch for high vacuum protection.
- Junction box with motor starter, including overload protection.
- Discharge silencer.

Options

- Fused disconnect in the junction box.
- Distributed I/O capability.
- Sound enclosure.
- Efficiency motors available.
- Re-sheave for elevation.
- 24VDC or 120VAC controls.

Figure 12: APDB, SPDB, CPDB Spare Parts Drawing

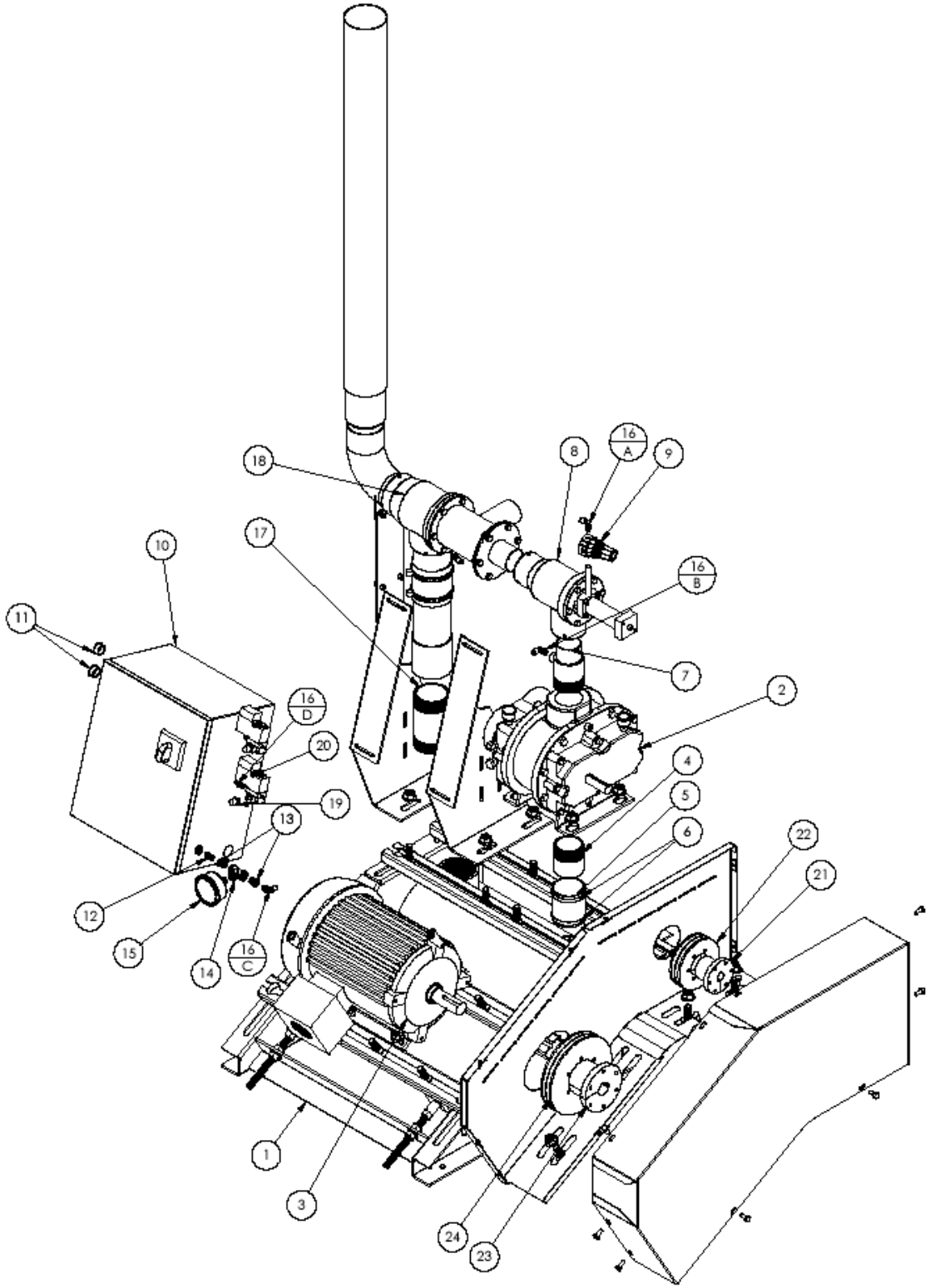


Figure 13: APDB, SPDB, CPDB Spare Parts List: *(See previous page for spare parts drawing)*

Item No.	Model No. APDB/SPDB/CPDB	Qty.	Part NO.	Description
1	5	1	228.00019.00	KIT,WELD,FRM,XPD,5HP,W/HDWR
2	5	1	A0571182	BLO,PD,33URAU,HORT,2.0NPT,LHD
3	5	1	51119	MOTOR,5HP,208-460 V (50HZ)
			W00052176	MTR,5HP,TEFC,1800RPM,230/460 184T FRAME,50/60HZ
			W00052800	MOTOR,5HP,575V
4	5	1	A0573874	NIP,TOE,2.0 NPT X 2.5
5	5	1	A0573944	HOSE,FLEX,2.5" ID X 3" LG
6	5	2	W00000239	#44 HOSE CLAMP
7	5	1	A0573316	ADPTR,CS,2.0 NPT X 2.0 OD W/ 1/8 TAP
8	5	1	W00018378	SUBASSY,AV2.00
9	5	1	W00013961	REG. AIR MINT 127111000 HPR LDR
10	5	1	A0573824	J BOX,5HP,115VAC,208/3/60 V
				JBOX,5HP,115VAC,220/3/50 V
				JBOX,5HP,115VAC,230/3/60 V
			A0573825	JBOX,5HP,115VAC,400/3/50 V
				JBOX,5HP,115VAC,460/3/60 V
				JBOX,5HP,115VAC,575/3/60 V
			A0571619	JBOX,5HP,24VDC or DIST I/O,208/3/60 V
				JBOX,5HP,24VDC or DIST I/O,220/6/50 V
				JBOX,5HP,24VDC or DIST I/O,230/3/60 V
			A0571662	JBOX,5HP,24VDC or DIST I/O,400/3/50 V
				JBOX,5HP,24VDC or DIST I/O,460/3/60 V
				JBOX,5HP,24VDC or DIST I/O,575/3/60 V
11	5	2	A0544752	PLUG,HOLE,DOME,BLK,0.875 DIA
12	5	1	A0538306	NIP,BR,0.13 NPT X 0.75 LG,CLOSE
13	5	2	A0543268	FTG,BR,BU,1/4M X 1/8F
14	5	1	A0543269	FTG,BR,TE,1/4 X ¼ X 1/4
15	5	1	A0547079	GAUG,VAC,2.5D,0-30",1/4LM,GF,LWR,MNT SS
16	5	4	35086K	FTG,TBG,90,1/8NPT X ¼ TBG
17	5	1	A0015081	NIP,CS,2.50 NPT X 5.0 OAL
18	5	1	A0573984	GRP,XPD 5,BB VLV MECH PTS
19	5	1	35157	MUFFLER,1/8" NPT
20	5	1	A0571252	SOLENOID VALVE- **24VDC**
			A0571250	SOLENOID VALVE- **120VDC**
21	5	1	A0573828	5HP,BLOWER BUSHING (50HZ)
				5HP,BLOWER BUSHING (60HZ)
22	5	1	A0534550	5HP,BLOWER SHEAVE (50HZ)
			A0538259	5HP,BLOWER SHEAVE (60HZ)
23	5	1	W00011494	5HP,MOTOR BUSHING (50HZ)
			A0547083	5HP,MOTOR BUSHING (60HZ)
24	5	1	A0538252	5HP,MOTOR SHEAVE (50 HZ)
			A0538247	5HP,MOTOR SHEAVE (60HZ)
25	5	2	W00011500	5HP,PUMP BELT,(50HZ)
				5HP,PUMP BELT (60 HZ)
26	5	1	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
27	5	1	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
28	5	1	W00001958	PLGR,2.86PD,EPT,BLK,3/8-16,CS
29	5	1	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES.CYL,AIR,13818A
30	5	1	A0547953	SW,VAC,SET @ 14HG

APDB, SPDB, CPDB Spare Parts List (Cont'd)

1	7.5	1	228.00018.00	KIT,WELD,FRM,XPD,7.5-15HP
2	7.5	1	A0571183	BLO,PD,45URAIJ,HORT,2.5NPT,LHD
3	7.5	1		MTR,7.5,TEFC,1800RPM,230/460 213T FRAME
			W00052179	MOTOR,7.5HP,208-460V (60HZ)
			W000525801	MOTOR,7.5HP,575V
4	7.5	1	A0573315	NIP,TOE,2.5NPT X 3.0
5	7.5	1	A0573944	HOSE,FLEX,3.0" ID X 3 LG
6	7.5	2	W00000239	#44 HOSE CLAMP
7	7.5	1	A0573316	ADPTR, CS, 2.5 NPT X 2.5 OD. W/ 1/8 TAP
8	7.5	1	W00050866	SUBASSY,AV 2.50
9	7.5	1	W00013961	REG,AIR MINT 127111000 HPR LD
10	7.5	1	A0573826	J BOX,7.5HP,115VAC,208/3/60 V
				JBOX,7.5HP,115VAC,220/3/50 V
				JBOX,7.5HP,115VAC,230/3/60 V
			A0573824	JBOX,7.5HP,115VAC,400/3/50 V
				JBOX,7.5HP,115VAC,460/3/60 V
				JBOX,7.5HP,115VAC,575/3/60 V
			A0571620	JBOX,7.5HP,24VDC or DIST I/O,208/3/60 V
				JBOX,7.5HP,24VDC or DIST I/O,220/3/50 V
				JBOX,7.5HP,24VDC or DIST I/O,230/3/60 V
			A0571619	JBOX,7.5HP,24VDC or DIST I/O,400/3/50 V
				JBOX,7.5HP,24VDC or DIST I/O,460/3/60 V
				JBOX,7.5HP,24VDC or DIST I/O,575/3/60 V
11	7.5	2	A0544752	PLUG,HOLE,DOME,BLK,0.875 DIA
12	7.5	1	A0538306	NIP,BR,0.13 NPT X 0.75 LG,CLOSE
13	7.5	2	A0543268	FIG,BR,BU,1/4M X 1/8F
14	7.5	1	A0543269	FTG,BR,TE,1/4 X ¼ X ¼
15	7.5	1	A0547079	GAUG,VAC,2.5D,0-30",1/4LM,GF,LWR,MNT,SS
16	7.5	4	35086K	FTG,TBG,90,1/8 NPT X 1/4 TBG
17	7.5	1	A0015081	NIP,CS,2.50 NPT X 5.0 OAL
18	7.5	1	A0573985	GRP,XPD,7.5-10,BB,VLV,MECH PTS
19	7.5	1	35157	MUFFLER,1/8" NPT
20	7.5	1	A0571252	SOLENOID VALVE -**24VDC**
			A0571250	SOLENOID VALVE-**120 VDC**
21	7.5	1	W00052178	7.5HP,BLOWER BUSHING (50 HZ)
				7.5HP,BLOWER BUSHING (60 HZ)
22	7.5	1	A0573829	7.5HP,BLOWER SHEAVE (50 HZ)
			A0534549	7.5HP,BLOWER SHEAVE (60 HZ)
23	7.5	1	W00054462	7.5HP,MOTOR BUSHING (50 HZ)
			W00011491	7.5HP,MOTOR BUSHING (60 HZ)
24	7.5	1	A0538247	7.5HP,MOTOR SHEAVE (50 HZ)
			A0573829	7.5HP,MOTOR SHEAVE (60 HZ)
25	7.5	2	W00011770	7.5HP,PUMP BELT (50 HZ)
			W00011500	7.5HP,PUMP BELT (60 HZ)
26	7.5	1	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
27	7.5	1	892.03243.00	SUBASSY,BASE,BLO,XPD7.5-15
28	7.5	1	A0547953	SW,VAC,SET @ 14HG
29	7.5	1	W00050866	SUBASSY.AV2.50
30	7.5	1	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
31	7.5	1	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

APDB, SPDB, CPDB Spare Parts List (cont'd)

1	10	1	228.000018.00	KIT,WELD,FRM,XPD,7.5-15HP
2	10	1	A0571183	BLO,PD,45URAJ,HORT,2.5NPT,LHD
3	10	1	A0504633	MOTOR,10HP-2.5",208-460 V (50HZ)
			W00016464	MTR,10HP,TEFC,1800RPM,230/460 215T FRAME
			W00052802	MOTOR,10HP-2.5",575 V
			W00016464	MOTOR,10HP-3.0",208-460
				MOTOR,10HP-3.0",208-460 V (60 HZ)
			W00052802	MOTOR,10HP-3.0",575V
4	10	1	A0573315	NIP,TOE,2.5 NPT X 3.0
5	10	1	A0573944	HOSE,FLEX,3.0" ID X 3 LG
6	10	2	W00000239	#44 HOSE CLAMP
7	10	1	A0573316	ADPTR,CS,2.5 NPT X 2.5 OD W/ 1/8 TAP
8	10	1	W00050866	SUBASSY,AV 2.50
9	10	1	W00013961	REG,AIR MINT 12711000 HPR LDR
10	10	1	A057826	JBOX,10HP,115VAC,208/3/60 V
				JBOX,10HP,115VAC,220/3/50 V
				JBOX,10HP,115VAC,230/3/60 V
			A0573824	JBOX,10HP,115VAC,400/3/50 V
				JBOX,10HP,115VAC,460/3/60 V
				JBOX,10HP,115VAC,575/3/60 V
			A0571620	JBOX,10HP,24VDC or DIST I/O,208/3/60 V
				JBOX,10HP,24VDC or DIST I/O,220/3/50 V
				JBOX,10HP,24VDC or DIST I/O,230/3/60 V
			A0571619	JBOX,10HP,24VDC or DIST I/O,400/3/50 V
				JBOX,10HP,24VDC or DIST I/O,460/3/60 V
				JBOX,10HP,24VDC or DIST I/O,575/3/60 V
11	10	2	A0544752	PLUG,HOLE,DOME,BLK,0.875 DIA
12	10	1	A0538306	NIP,BR,0.13 NPT X 0.75 LG,CLOSE
13	10	2	A0543268	FIG,BR,BU,1/4M X 1/8F
14	10	1	A0543269	FTG,BR,TE,1/4 X ¼ X 1/4
15	10	1	A0547079	GAUG,VAC,2.5D,0-30",1/4LM,GF,LWR,MNT,SS
16	10	4	35086K	FTG,TBG,90,1/8 NPT X ¼ TBG
17	10	1	A0015081	NIP,CS,2.50 NPT X 5.0 OAL
18	10	1	A0573985	GPG,XPD,7.5-10,BB,VLV,MECH PTS
19	10	1	35157	MUFFLER,1/8" NPT
20	10	1	A0571252	SOLENOID VALVE-**24 VDC**
			A0571250	SOLENOID VALVE-**120 VAC**
21	10	1	A0547933	10HP-2.5"LINE,BLOWER BUSHING (50 HZ)
			A0538249	10HP-2.5"LINE,BLOWER BUSHING (60 HZ)
			W00052178	10HP-3.0"LINE,BLOWER BUSHING (50 HZ)
			A0538294	10HP-3.0"LINE,BLOWER BUSHING (60 HZ)
22	10	1	A0538247	10HP-2.5"LINE,BLOWER SHEAVE (50 HZ)
			A0538248	10HP-2.5"LINE,BLOWER SHEAVE (60 HZ)
			A0538259	10HP-3.0"LINE,BLOWER SHEAVE (50 HZ)
			A0538248	10HP-3.0"LINE,BLOWER SHEAVE (60 HZ)
23	10	1	W00011491	10HP-2.5",MOTOR BUSHING (50HZ)
				10HP-2.5",MOTOR BUSHING (60HZ)
			W00054462	10HP-3.0",MOTOR BUSHING (50HZ)
				10HP-3.0",MOTOR BUSHING (60HZ)

APDB, SPDB, CPDB Spare Parts List (cont'd)

24	10	1	A0573829	10HP-2.5",MOTOR SHEAVE (50 HZ)
			A0534550	10HP-2.5",MOTOR SHEAVE (60 HZ)
			A0538258	10HP-3.0",MOTOR SHEAVE (50 HZ)
			A0538247	10HP-3.0",MOTOR SHEAVE (60 HZ)
25	10	1	W00011770	10HP-2.5"LINE,PUMP BELT (50 HZ)
			W00011500	10HP-2.5"LINE,PUMP BELT (60 HZ)
			A0547043	10HP-3.0"LINE,PUMP BELT (50 HZ)
			W00011500	10HP-3.0"LINE,PUMP BELT (60 HZ)
26	10	1	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
27	10	1	A0547953	SW,VAC,SET @ 14HG
28	10	1	W00050867	SUBASSY,AV3.00
29	10	1	892.03243.00	SUBASSY.BASE,BLO,XPD7.5-15
30	10	1	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
31	10	1	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

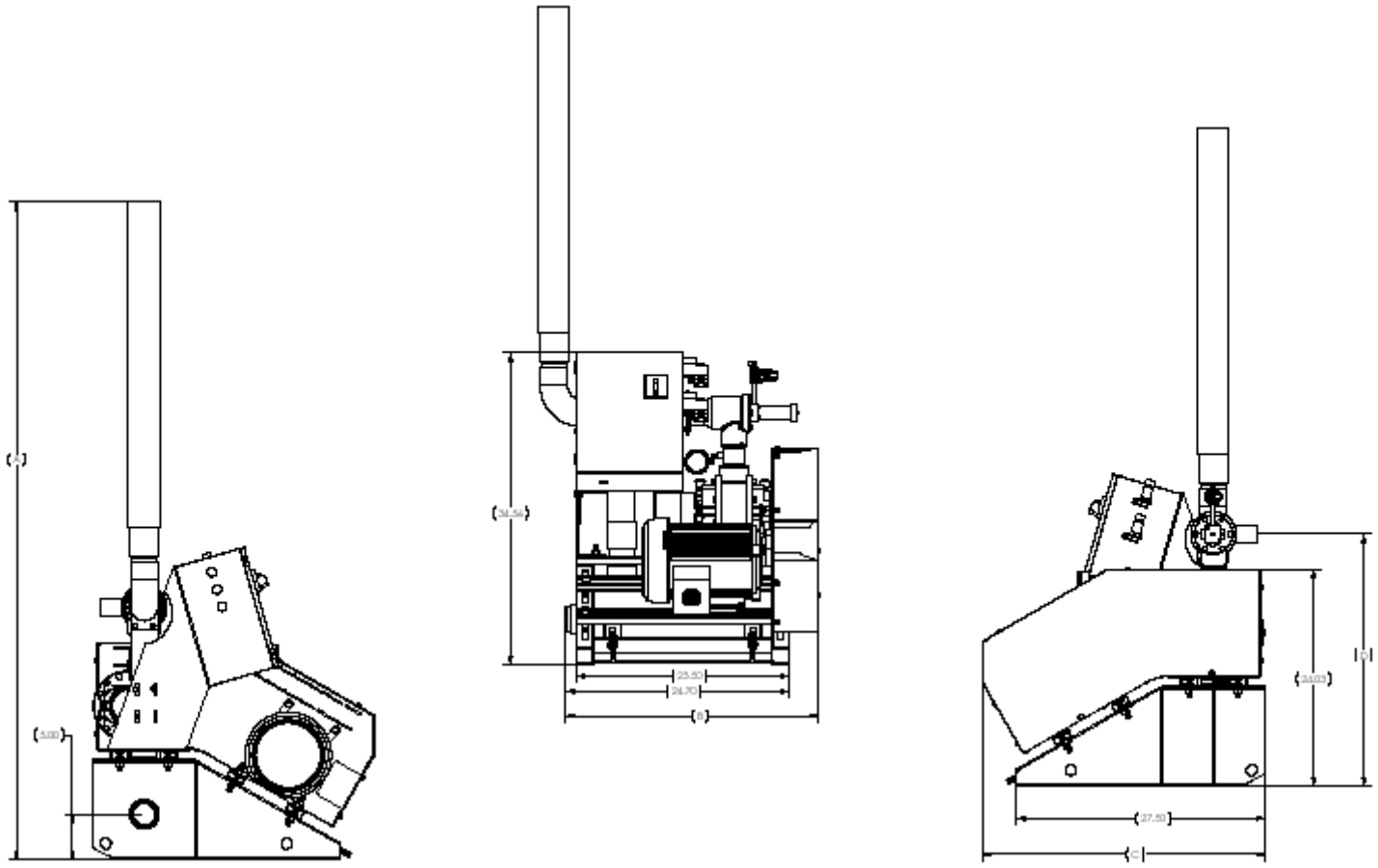
APDB, SPDB, CPDB Spare Parts List (cont'd)

1	15	1	228.00018.00	KIT,WELD,FRM,XPD,7.5-15HP
2	15	1	A0571183	BLO,PD,45URAIJ,HORT,2.5NPT,LHD
3	15	1	A0555870	MOTOR,15HP-3.0"208-460V (50 HZ)
			W00016466	MTR,15HP,TEFC,1800RPM,230/460,254T FRAME
			W00052803	MOTOR,15HP-3.0",575V
			A0555870	MOTOR,15HP-3.5",208-460V (50 HZ)
			W00016466	MOTOR,15HP-3.5",208-460V (60HZ)
			W00052803	MOTOR,15HP-3.5",575V
4	15	1	A0573315	NIP,TOE,2.5NPT X 3.0
5	15	1	A0573944	HOSE,FLEX,3.0"ID X 3 LG
6	15	2	W00000239	#44 HOSE CLAMP
7	15	1	A0573317	ADPTR,CS,2.5NPT X 3.0OD,W/1/8 TAP
8	15	1	W00050867	SUBASSY,AV3.00
9	15	1	W00013961	REG,AIR MINT 127111000 HPR LDR
10	15	1	A0573827	JBOX,15HP,115VAC,208/3/60V
				JBOX,15HP,115VAC,220/3/50V
				JBOX,15HP,115VAC,230/3/60V
			A0573826	JBOX,15HP,115VAC,400/3/50V
				JBOX,15HP,115VAC,460/3/60V
				JBOX,15HP,115VAC,575/3/60V
			A0571621	JBOX,15HP,24VDC or DIST I/O,208/3/60V
				JBOX,15HP,24VDC or DIST I/O,220/3/50V
				JBOX,15HP,24VDC or DIST I/O,230/3/60V
			A0571620	JBOX,15HP,24VDC or DIST I/O,400/3/50V
				JBOX,15HP,24VDC or DIST I/O,460/3/60V
				JBOX,15HP,24VDC or DIST I/O,575/3/60V
11	15	2	A0544752	PLUG,HOLE,DOME,BLK,0.875 DIA
12	15	1	A0538306	NIP,BR,0.13 NPT X 0.75 LG,CLOSE
13	15	2	A0543268	FIG,BR,BU,1/4M X 1/8F
14	15	1	A0543269	FTG,BR,TE,1/4 X ¼ X 1/4
15	15	1	A0547079	GAUG,VAC,2.5D,0-30",1/4LM,GF,LWR,MNT SS
16	15	4	35086K	FTG,TBG,90,1/8 NPT X ¼ TBG
17	15	1	A0015081	NIP,CS,2.50 NPT X 5.0 OAL
18	15	1	A0573986	GRP,XPD 15,BB,VLV,MECH PITS
19	15	1	35157	MUFF;ER,1/8"NPT
20	15	1	A0571252	SOLENOID VALVE-**24 VDC**
			A0571250	SOLENOID VALVE-**120 VAC**

APDB, SPDB, CPDB Spare Parts List (cont'd)

21	15	1	W00052175	15HP-3.0"LINE,BLOWER BUSHING (50HZ)
				15HP-3.0"LINE,BLOWER BUSHING (60HZ)
				15HP-3.5"LINE,BLOWER BUSHING (50HZ)
				15HP-3.5"LINE,BLOWER BUSHING (60HZ)
22	15	1	A0534549	15HP-3.0"LINE,BLOWER SHEAVE (50 HZ)
			A0534550	15HP-3.0"LINE,BLOWER SHEAVE (60HZ)
				15HP-3.5"LINE,BLOWER SHEAVE (50HZ)
			A0573829	15HP-3.5LINE,BLOWER SHEAVE (60HZ)
23	15	1	W0011495	15HP-3.0",MOTOR BUSHING (50HZ)
			22012M	15HP-3.0",MOTOR BUSHING (60HZ)
			W011495	15HP-3.5",MOTOR BUSHING (50HZ)
			22012M	15HP-3.5",MOTOR BUSHING (60HZ)
24	15	1	A0573829	15HP-3.0",MOTOR SHEAVE (50HZ)
			23012M	15HP-3.0",MOTOR SHEAVE (60HZ)
			A0534549	15HP-3.5",MOTOR SHEAVE (50HZ)
			23012M	15HP-3.5",MOTOR SHEAVE (60HZ)
25	15	2	A0547043	15HP-3.0"LINE,PUMP BELT (50HZ)
				15HP-3.0"LINE,PUMP BELT (60HZ)
				15HP-3.5"LINE,PUMP BELT (50HZ)
				15HP-3.5"LINE,PUMP BELT (60HZ)
26	15	1	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
27	15	1	A0547953	SW,VAC,SET @ 14HG
28	15	1	892.03243.00	SUBASSY,BASE,BLO,XPD7.5-15
29	15	1	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
30	15	1	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

Figure 14: APDB, SPDB, CPDB 5-15 Series Blowback Pump Dimensions



Model APDB/SPDB/ CPDB	Unit size hp	Dimensions (inches)			
		A	B	C	D
5	5	64.71	64.84	64.84	64.84
7.5	7.5	28.22	29.34	29.34	29.34
10	10	31.10	31.10	31.10	31.75
15	15	27.84	30.93	30.93	30.93

Model APDB/SPDB/ CPDB	Unit size kW	Dimensions (cm)			
		A	B	C	D
5	3.75	164.36	164.69	164.69	164.69
7.5	5.6	71.68	74.52	74.52	74.52
10	7.5	78.99	78.99	78.99	80.65
15	11.25	70.71	78.56	78.56	78.56

VTTV TurboVac Series Pumps

Models: VTTV-1.0, VTTV-2.0, VTTV-3.5, VTTV-8.5

- Centrifugal blower.
- Cartridge filter.
- Vent valve (optional on VTTV-1.0 1-hp [0.75 kW] unit).
- Junction box with starter mounted on unit.

Options

- Freestanding central filter.
- Distributed I/O.
- Fused disconnect.
- 24VDC or 120VAC controls.

Figure 15: Spare Parts List VTTV Pumps

Spare Parts List model VTTV-1.0:

Model	Part Number	Description
VTTV 1.0	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
VTTV 1.0	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
VTTV 1.0	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,NPT,CND,CONN
VTTV 1.0	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT,CND,CONN
VTTV 1.0	W00018378	SUBASSY,AV2.00
VTTV 1.0	A0546402	FLTR,VTTV1.0
VTTV 1.0	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
VTTV 1.0	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

Spare Parts List model VTTV-2.0:

Model	Part Number	Description
VTTV 2.0	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
VTTV 2.0	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
VTTV 2.0	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=015,NPT,CND,CONN
VTTV 2.0	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT,CND,CONN
VTTV 2.0	W00018378	SUBASSY,AV2.00
VTTV 2.0	A0547482	FLTR,VTTV2.0
VTTV 2.0	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
VTTV 2.0	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

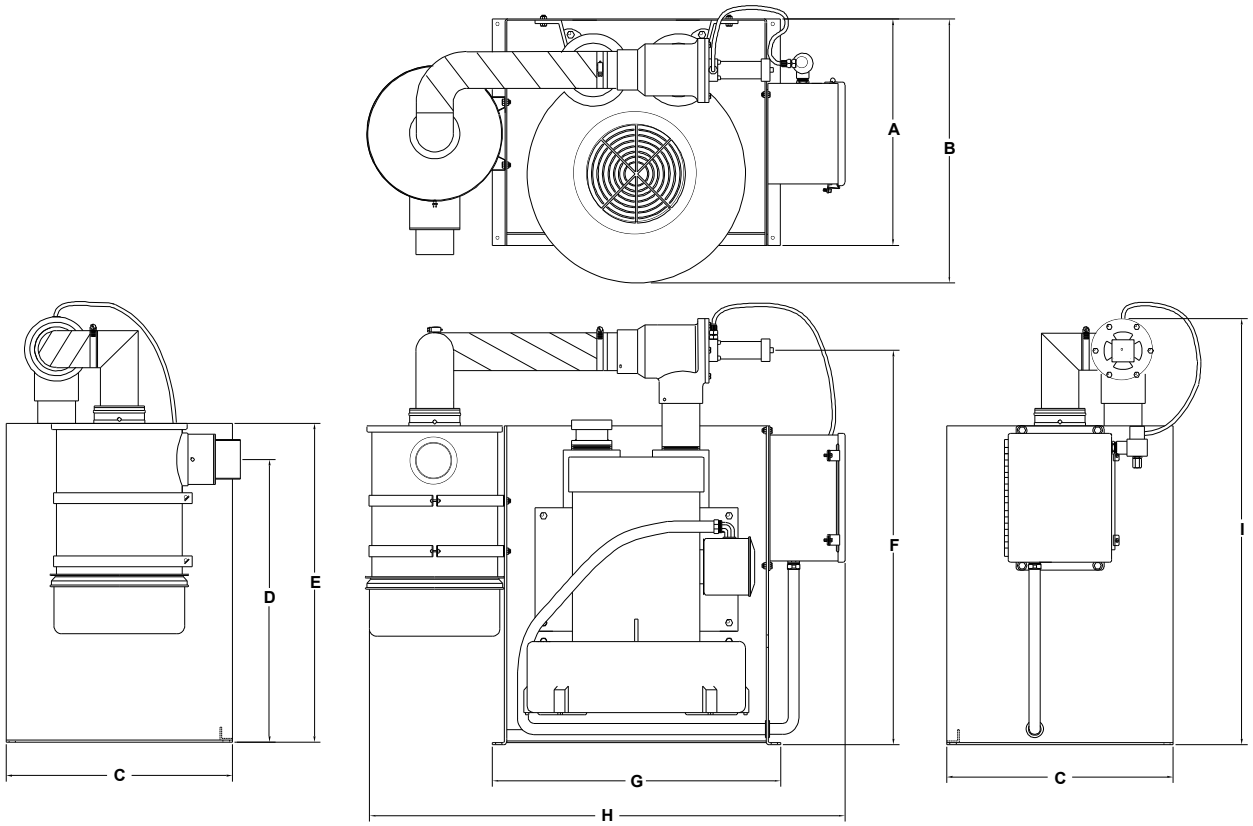
Spare Parts List model VTTV-3.5:

Model	Part Number	Description
VTTV 3.5	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
VTTV 3.5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
VTTV 3.5	A0544603	FLTR,VTTV3.5,2.0OD
VTTV 3.5	A0554722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,NPT,CND,CONN
VTTV 3.5	A0554723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT,CND,CONN
VTTV 3.5	W00018378	SUBASSY,AV2.00
VTTV 3.5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
VTTV 3.5	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

Spare Parts List model VTTV-8.5:

Model	Part Number	Description
VTTV 8.5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
VTTV 8.5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
VTTV 8.5	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

Figure 16: VTTV TurboVac Series Pump Dimensions



Model VTTV	Unit size	Dimensions (inches)								
	hp	A	B	C	D	E	F	G	H	I
1.0	1 ①	9	12 3/8	9	—	18 1/4	—	16 3/4	26 1/4	23 ②
2.0	2	18	—	18	20 5/8	25 3/8	29 13/16	22 7/8	32 2/3	32 5/16
3.5	3.5	18	—	18	22 1/2	25 3/8	29 13/16	22 7/8	35 5/16	32 5/16
8.5	8.5	18	21	18	22 1/2	25 3/8	31 3/8	23	37 13/16	33 7/8

Model VTTV	Unit size	Dimensions (cm)								
	kW	A	B	C	D	E	F	G	H	I
1.0	0.75 ①	23	31	23	—	46	—	109	66	58 ②
2.0	1.50	46	—	46	52	64	76	58	83	82
3.5	2.63	46	—	46	57	64	76	58	89	82
8.5	6.38	46	53	46	57	64	79	58	96	86

① Does not include **D** and **F** dimensions.

② Dimension **I** is overall height for 1-hp (0.75 kW) unit only.

③ Note: Atmospheric valve (shown) for TV 2.0 – 8.5 units only.

Figure 17: Pump Specifications (VTP, SPD, CPD, VTPB, SPDB, CPDB and VTTV Pumps)

Model	Amp draw, full-load amps			Air flow ①	Line size	Ship weight
hp	230 V	460 V	575 V	cfm	inches	lbs.
Pump — VTP, SPD						
5	13.6	6.8	5.4	110	2” tube	385
7.5	20.6	10.3	8.2	150	2½” tube	470
10	27.2	13.6	10.9	225	3” tube	830
15	39.2	19.6	15.7	350	3” Sch. 5 pipe	870
20	49.6	24.8	19.8	475	4” tube	1,600
30	76.3	38.1	30.4	665	5” tube	1,700
Pumps with Blowback — VTPB, SPDB, CPDB						
5	13.6	6.8	5.4	103	2” tube	385
7.5	20.6	10.3	8.2	150	2½” tube	470
10	27.2	13.6	10.9	225	3” tube	830
15	39.2	19.6	15.7	300	3” Sch. 5 pipe	870
25	49.6	24.8	19.8	545	4.5” tube	1,600
30	76.3	38.1	30.4	765	5” Sch. 10 pipe	1,700
TurboVac Pumps — VTTV						
1.0	3.4	1.7	1.4	50	1½” tube	50
2.0	6.2	3.1	2.5	85	1½” tube	75
3.5	11.3	5.7	4.4	100	2” tube	175
8.5	23.8	11.9	9.2	225	3” tube	350

① Air flow measured in cubic feet per minute (cfm) and cubic meters per hour (cmh).

NOTICE ***Rated performance is at standard atmosphere and sea level conditions. High elevation affects system performance***

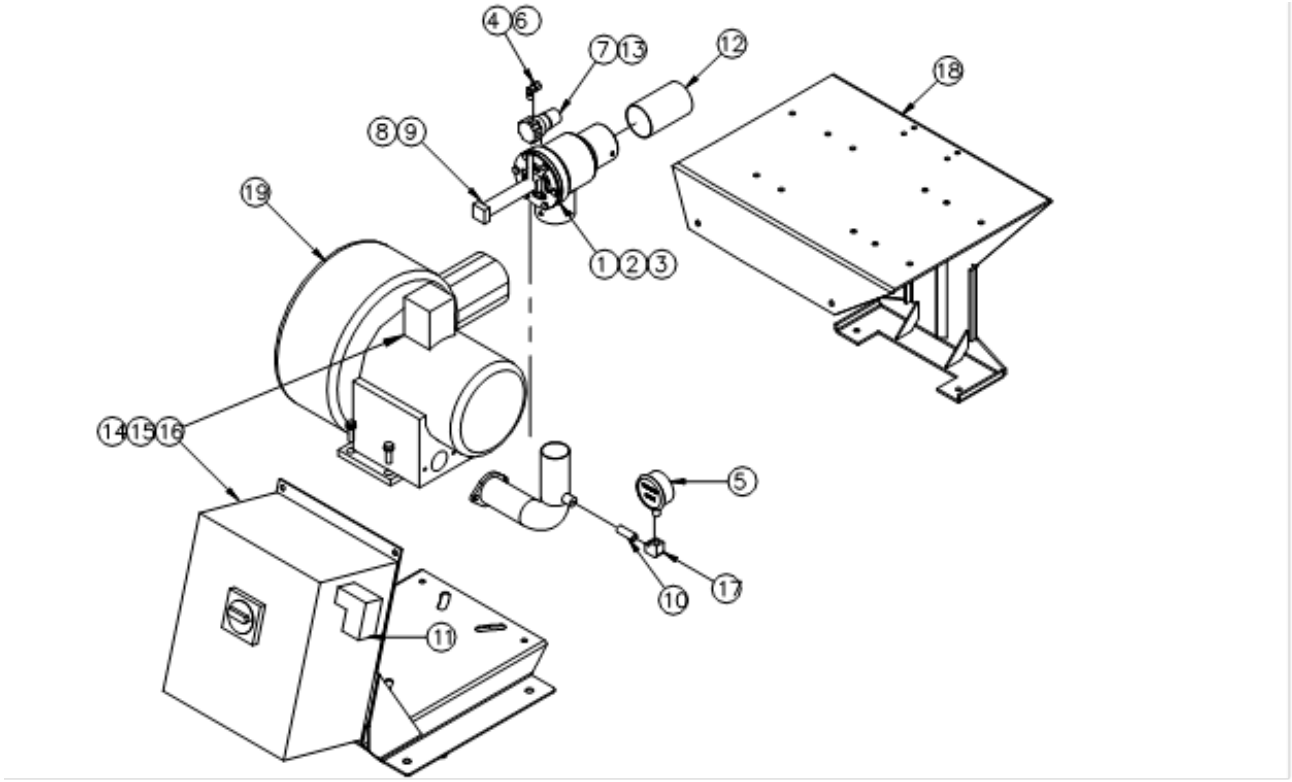
Pump Specifications (VTP/SPD/SPD, VTPB/SPDB/CPDB, and VTTV Pumps) (Cont'd.)

Model	Amp draw, full-load amps			Air flow ①	Line size	Ship weight
kW	230 V	460 V	575 V	cmh	mm	Kg
Pumps — VTP, SPD, CPD Models						
3.75	13.6	6.8	5.4	186	50 mm tube	175
5.63	20.6	10.3	8.2	254	63 mm tube	214
7.50	27.2	13.6	10.9	382	76 mm tube	377
11.25	39.2	19.6	15.7	594	3" Sch. 5 pipe	395
14.9	49.6	24.8	19.8	805	101.6 mm tube	727
22.4	76.3	38.1	30.4	1,127	127 mm tube	789
Pumps with Blowback — VTPB, SPDB, CPDB/ Models						
3.75	13.6	6.8	5.4	175	50 mm tube	175
5.63	20.6	10.3	8.2	254	63 mm tube	214
7.50	27.2	13.6	10.9	382	76 mm tube	377
11.25	39.2	19.6	15.7	507	3" Sch. 5 pipe	395
18.7	49.6	24.8	19.8	968	4" Sch. 10 pipe	727
22.4	76.3	38.1	30.4	1,208	5" Sch. 10 pipe	789
TurboVac Pumps — VTTV Models						
0.75	3.4	1.7	1.4	84	38 mm tube	23
1.50	6.2	3.1	2.5	144	50 mm tube	35
2.63	11.3	5.7	4.4	169	50 mm tube	80
6.38	23.8	11.9	9.2	382	76 mm tube	159

① Air flow measured in cubic feet per minute (cfm) and cubic meters per hour (cmh).

NOTICE ***Rated performance is at standard atmosphere and sea level conditions. High elevation affects system performance.***

Figure 18: APC, SPD, CPD Spare Parts Drawing

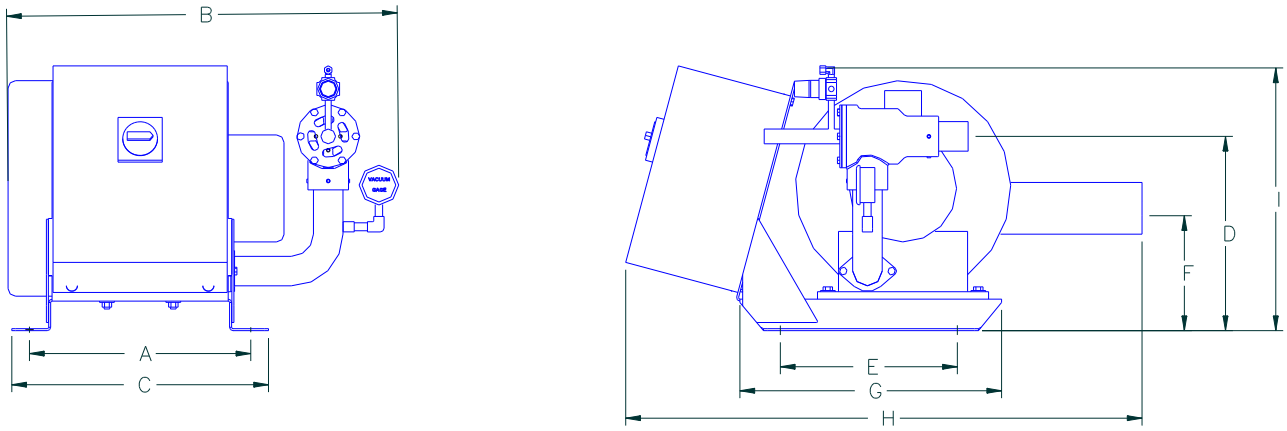


APC, SPC, CPC Centrifugal Pumps

Models: 3.5, 6.5 & 11 Hp

- Centrifugal blower.
- Cartridge filter.
- Vent valve
- Junction box with starter mounted on unit.

Figure 19: Centrifugal Pump Dimensions



Model APC/SPC/CPC	Unit size kW	Dimensions (cm)								
		A	B	C	D	E	F	G	H	I
3.5	2.63	38	67	44	33	30	22	45	89	46
6.5	4.84		62		33		19		79	45
11.0	8.58		80		37		21		90	48

***At 460/3/60**

Figure 20: APC, SPC, CPC Centrifugal Vacuum Pump Spare Parts List

List #	Qty	Model No. APC/SPC/CPC	Part No.	Description
1	1	3.5, 6.5	W00000145	O-RING
2	1	3.5, 6.5	W00013524	VALVE PLUNGER
3	1	3.5, 6.5	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
4	1	3.5, 6.5, 11	A0069307	AIR TUBING
5	1	3.5, 6.5, 11	A0547079	VACUUM GAUGE
6	1	3.5, 6.5, 11	35086K	TUBING ELBOW
7	1	3.5, 6.5, 11	W00013961	AIR REGULATOR
8	1	3.5, 6.5, 11	W00017552	CYLINDER SEAL KIT
9	1	3.5, 6.5, 11	W00017688	CYL,AIR,S1311,1.515HP,2HOLE,CYL,AIR,2HLE,OPCYL,ROD END
10	1	3.5, 6.5, 11	A0535380	BRASS NIPPLE,.25 NPT X 1.5LG
11	1	3.5, 6.5, 11	A0571250	SOLENOID VALVE,3 WAY,115 VAC,1/8 NPT
	1	3.5, 6.5, 11	A0571252	SOLV,3WAY,24VDC,1/8NPT,CV=.18,1/2NPT,CND,CONN,W/JBOX
12	1	3.5, 6.5, 11	W00000334	HOSE CLAMP
13	1	3.5, 6.5, 11	A0015492	NIPPLE FITTING
14	1	3.5, 6.5, 11	A0562421	CONDUIT FITTING STRAIGHT
15	1	3.5, 6.5, 11	A0562419	CONDUIT FITTING ELBOW
16	3 FT.	3.5, 6.5, 11	A0562430	CONDUIT FLEXIBLE
17	1	3.5, 6.5, 11	35193	BRASS ELBOW ¼ NPT
18	1	3.5, 6.5, 11	A0570035	FILTER MOUNTING ADAPTER
19	1	3.5	A0570037	BLOWER,3.5 HP 208-460 V
	1	3.5	A0570030	BLOWER, 3.5 HP 575 V
	1	6.5	A0570038	BLOWER, 5 HP 208-460 V
	1	6.5	A0570033	BLOWER 5 HP 575 V
	1	11	A0570039	BLOWER 11.5 HP 208/406 V
	1	11	A0570040	BLOWER 11.5 HP 575 V
1	1	11	W00001045	O-RING
20	1	3.5, 6.5, 11	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
21	1	3.5, 6.5	A0547953	SW,VAC,SET @ 14HG
22	1	11	A0547953	SW,VAC,SET @ 14HG
23	1	3.5, 6.5	W00018378	SUBASSY,AV2.00
24	1	11	W00050866	SUBASSY,AV2.50
25	1	3.5, 6.5, 11	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
26	1	3.5, 6.5, 11	W00017529	CYL,AIR,S1288,(2)1/4-20 HOLES,CYL,AIR,13818A

Figure 21: APD, SPD, CPD, APDB, SPDB, CPDB, and APC, SPC, CPC Pump Specifications (Positive Displacement and Centrifugal pump)

Model	hp	Amp draw, full-load amps			Air flow ①	Line size inches		Ship weight lbs.
		230 V	460 V	575 V	cfm			
Pumps — Positive Displacement Models (APD/B, SPD/B, CPD/B)						*Vacuum*	*Material*	
XPD 5	5	13.4	6.7	5.4	120	2.0”	2.0”	385
XPD 7.5	7.5	20.6	10.3	8.2	155	2.5”	2.5”	400
XPD 10	10	28.4	14.2	11.4	200	2.5”	2.5”	400
XPD 10	10	29.2	14.6	11.7	300	3.0”	3.0”	400
XPD 15	15	38.4	19.2	15.3	300	3.0”	3.0”	420
XPD 15	15	39.2	19.6	15.7	360	3.5”	3.5”	420
XPDB 5	5	13.4	6.7	5.4	120	2.0”	2.0”	385
XPDB 7.5	7.5	20.6	10.3	8.2	155	2.5”	2.5”	400
XPDB 10	10	28.4	14.2	11.4	200	2.5”	2.5”	400
XPDB 10	10	29.2	14.6	11.7	300	3.0”	3.0”	400
XPDB 15	15	38.4	19.2	15.3	300	3.0”	3.0”	420
XPDB 15	15	39.2	19.6	15.7	360	3.5”	3.5”	420
Pumps — Centrifugal Models (APC, SPC, CPC)						*Vacuum*	*Material*	
XPC 3.5	3.5	9.1	4.6	3.0	106	2.0”	1.5”	175
XPC 6.5	5	12.9	6.5	4.3	152	2.0”	2.0”	300
XPC 11.5	11.5	32.5	16.2	10.6	225	2.5”	2.5”	350

Model	kW	Amp draw, full-load amps			Air flow ①	Line size mm	Ship weight Kg
		230 V	460 V	575 V	cmh		
Pumps — Positive Displacement Models (APD, SPD, CPD)							
XPD 5	3.7	13.4	6.7	5.4	203	51 mm	175
XPD 7.5	5.6	20.6	10.3	8.2	263	63.5 mm	181
XPD 10	7.5	28.4	14.2	11.4	339	63.5 mm	181
XPD 10	7.5	29.2	14.6	11.7	381	76 mm	181
XPD 15	11.2	38.4	19.2	15.3	508	76 mm	190
XPD 15	11.2	39.2	19.6	15.7	610	89 mm	190
XPDB 5	3.7	13.4	6.7	5.4	203	51 mm	175
XPDB 7.5	5.6	20.6	10.3	8.2	263	63.5 mm	181
XPDB 10	7.5	28.4	14.2	11.4	339	63.5 mm	181
XPDB 10	7.5	29.2	14.6	11.7	381	76 mm	181
XPDB 15	11.2	38.4	19.2	15.3	508	76 mm	190
XPDB 15	11.2	39.2	19.6	15.7	610	89 mm	190
Pumps — Centrifugal Models (APC, SPC, CPC)							
XPC 3.5	2.63	9.1	4.6	3.0	180	38 mm	80
XPC 6.5	4.84	12.9	6.5	4.3	258	50 mm	136
XPC 11.5	8.58	32.5	16.2	10.6	302	63 mm	159

① Air flow measured in cubic feet per minute (cfm) and cubic meters per hour (cmh).

NOTICE ***Rated performance is at standard atmosphere and sea level conditions. High elevation affects system performance***

SRH/SRC, SSR, CSR Vacuum Receivers

Models: SRH01, SRC02, SRC04, SRC08, SRC16, SRC30, SRC60
SSR02, SSR06, SSR11, SSR23, SSR45, SSR85, SSR170
CSR02, CSR06, CSR11, CSR23, CSR45, CSR85, CSR170

- Receiver capacities of 0.1, 0.2, 0.4. 0.8, 1.6, 3.0, and 6.0 cu. ft. (2.8, 5.6, 11.3, 22.6, 45.3, 84.9, and 169.9 liters).
- Brushed stainless steel construction, with stainless steel product contact surfaces.
- Material demand/level sensor with Normally Open (std.) or Normally Closed (version available) contacts.
- Perforated stainless steel pellet deflectors (SRC30/60 and SSR/CSR 85/170 Models).
- Ten (10) -mesh stainless steel pellet deflector screen (SRC02–16 and SSR/CSR06-45 models only).
- Removable side inlets and outlets – up to 3” O.D.(except on 0.1 cu. ft. [2.8 liter] models).
- Internal check valve on material inlets (up to 3” line size) – Not on SRC02 and SSR/CSR06 models.

Options

- Volume fill sensor.
- Optiview sensor.
- Spun aluminum riser.
- Filters (polyester, nylon, mesh & perforated screen).
- Throat gaskets – high temp & food grade.
- Consult assembly drawings for optional materials.

NOTICE ***SRC 30/60 and SSR/CSR 85/170 models can be vented or non-vented or equipped with a silo mount riser with an access door***

Figure 22: Typical SRC Series Vacuum Receiver Exploded View (SRC02-16 shown, Pre-May 2003

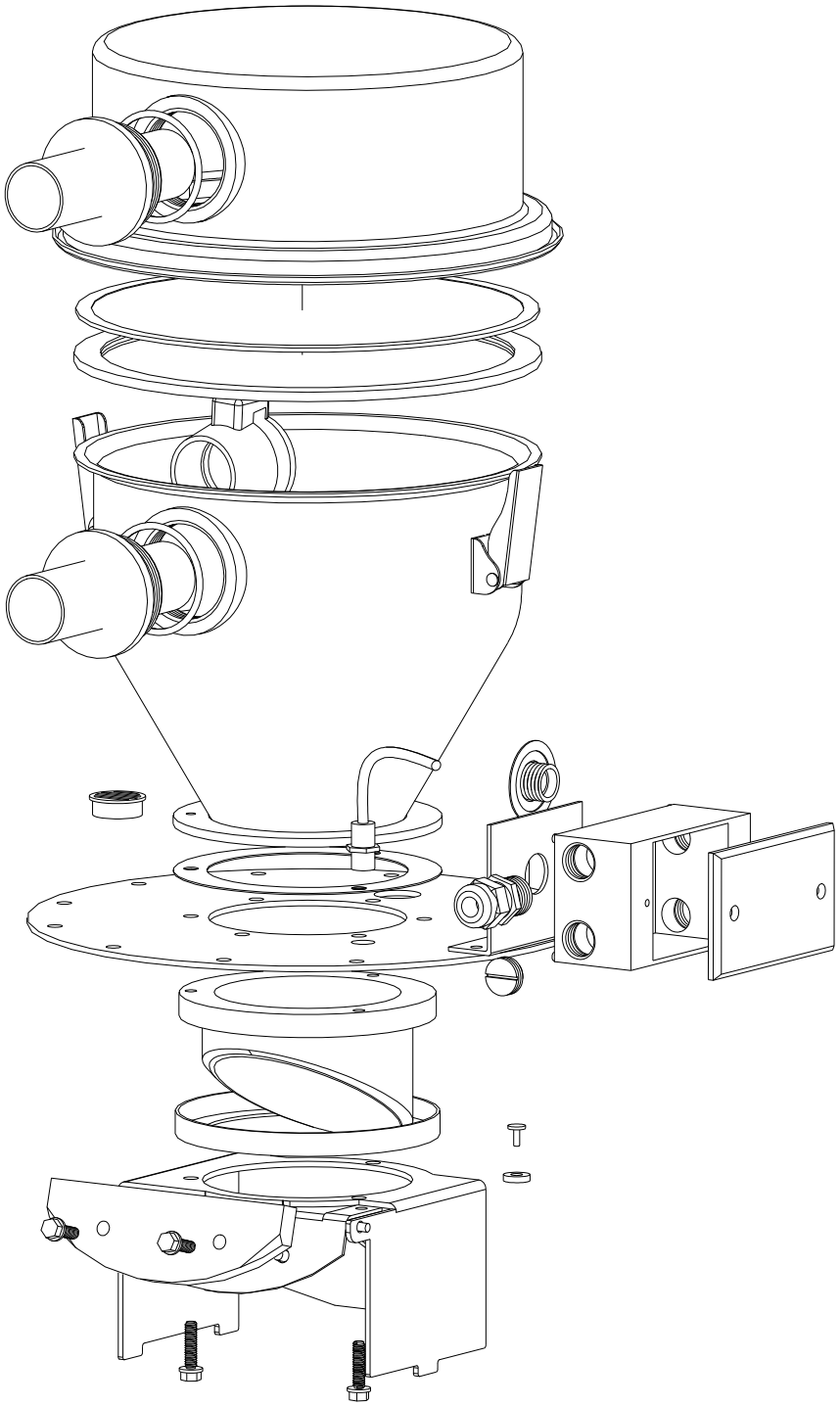


Figure 23: SRC, SSR, CSR Series Vacuum Receiver Parts List (Pre-May 2003)

Model No.	Quantity	Part No.	Description
SRC02, SSR/CSR06	1	A0563504	CONE,WELD,9”DIA
SRC02, SSR/CSR06	1	A0563505	CONE,WELD,9”DIA
SRC08, SSR/CSR23	1	A0563507	CONE,WELD,14”DIA
SRC08, SSR/CSR23	1	A0563508	CONE,WELD,14”DIA
SRC02-04, SSR/CSR06-11	1	A0556507	COVER,WELD,9”DIA
SRC08, SSR/CSR23	1	A0556508	COVER,WELD,14”DIA
SRC02-04, SSR/CSR06-11	2	A0556504	IN/OUT,SRX02-04,AL,1.50
SRC08-16, SSR/CSR23-45	2	A0556520	IN/OUT,SRX08-16,AL,3.00
SRC02-16, SSR/CSR06-45	1	A0563510	FLANGE,MTG,MLD THRT,12”DIA
SRC02-04, SSR/CSR06-11	2	A0553728	ORING,SILICONE,AS568-228
SRC08, SSR/CSR23	2	A0556546	ORING,SILICONE,3.234ID X 0.139THK
SRC02-16, SSR/CSR06-45	1	A0563516	BRACKET,J BOX
SRC02-04, SSR/CSR06-11	1	A0559419	CV,URETHANE,1.50ID
SRC08, SSR/CSR23	1	A0559422	CV,URETHANE,3.00ID
ALL	1	A0541036	BOX,SINGLE GANG,4X2X2
ALL	1	A0541037	COVER,BOX,SINGLE GANG,4X2
SRC02-04, SSR/CSR06-11	1	A0556532	SCREEN,SSTL,10 MESH
SRC08, SSR/CSR23	1	A0556533	SCREEN,SSTL,10 MESH
SRC02-16, SSR/CSR06-45	1	A0541039	CORD,GRIP,1/2”,0.270-0.480
ALL	3	A0541038	PLUG,BOX,GANG,1/2”NPT
SRC02-16, SSR/CSR06-45	1	A0003254	WASHER,REDUCER,0.75” X 0.5”
ALL	1	W00002373	WSHR,FLAT,PS,#10
ALL	1	W00016426	NUT,STOP,PS,1/4-20
SRC02-16, SSR/CSR06-45	1	A0003217	NIPPLE,CONDUIT,1/2”NPT
SRC02-16, SSR/CSR06-45	1	A0548359	PLUG,NYLON,5/8”
SRC02-16, SSR/CSR06-45	1	A0567620	ASSEMBLY,4”ANGLED THROAT,SS
SRC/SLC02-16, SSR/SLC06-45, CSR/CSL06-45	1	A0563543	INSR,THRT,4”SS
SRC/SLC02-16, SSR/SLC06-45, CSR/CSL06-45	1	A0563536	ASSY,FLAP/SPRT
SRC02-16	1	A0563517	THRT,SILC,4.0 DIA
SRC/SLC02-16, SSR/SLC06-45, CSR/CSL06-45	1	A0563512	CTWT,FLAP
ALL	2	A0567628	SCREW,BTNHD,PHILLIPS,#6-32 X 1/2LG,SS
ALL	1	A0567627	SCREW,FLTHD,PHILLIPS,#6-32 X 1/2LG,SS
ALL	2 FT.	W00000890	HOSE,RUBBER,BLK,1/4” X 1/16”
ALL	1	A0533924	MAGNET CERAMIC
ALL	1	A0563514	SW,REED,MAG,SPDT
SRC/SLC, SSR/SLC, CSR/CSL	1	A0563515	MAG,ACTUATOR,REED,SW
SRC/SSR/CSR	1	A0563533	VENT,LOUVER,1”DIA,ALUM NATURAL
OPT.	1	A0559420	CV,URETHANE,2.00ID
OPT.	2	A0559421	CV,URETHANE,2.50ID
OPT.	OPT.	A0548190	SWITCH,PROX,DC,NC,NPN
OPT.	OPT.	A0548191	SWITCH,PROX,AC,NC
ALL	1	A0533925	SWITCH,PROX
SRC/SSR/CSR	3	W00017692	SRC,SHC,SSR, CSR, 1/4-20 X 5/8,W/PATCH
SRC02-04, SSR/CSR06-11	2	A0556505	IN/OUT,SRC02-04. SSR/CSR06-11,AL,2.00
SRC08-16, SSR/CSR23-45	2	A0556518	IN/OUT,SRC08-16, SSR/CSR23-45,AL,2.00
SRC08-16, SSR/CSR23-45	2	A0556519	IN/OUT,SRC08-16, SSR/CSR23-45,AL,2.50
SRC08-16, SSR/CSR23-45	2	A0559438	IN/OUT,SRC08-16, SSR/CSR23-45,AL,3.50

Model No.	Quantity	Part No.	Description
SRC02-16, SSR/CSR06-45	1	W00012559	GSKT,THRT,4”,EPT,BLK,SRC 02-16, SSR/CSR06-45
SRC02-16, SSR/CSR06-45	1	W00018024	GSKT,THRT,4”,SILC,ORG,SRC 02-16, SSR/CSR06-45
SRC02-16, SSR/CSR06-45	1	W00016136	GSKT,THRT,4”,NPRN,WHT,SRC 02-16, SSR/CSR06-45
SRC02-04, SSR/CSR06-11	1	A0556821	GASKET,U CHANNEL,10”DIA
SRC08-16, SSR/CSR23-45	1	A0555790	GASKT,U CHANNEL, 13”DIA
ALL	2	A0563513	GASKET,THROAT,SEAL
SRC02-16, SSR/CSR06-45	1	A0563520	RING,THROAT,4”SS
ALL	1	A0559430	IN/OUT,SRX02-04,AL,2.25
ALL	1	A0555796	IN/OUT,SRX02-04,AL,2.50
ALL	1	A0559425	CV,URETHANE,2.25ID
ALL	1	A0565925	FLTR,FLAT,10.25OD,WIRE,10 MESH,SRC/H/I02-04, SSR/CSR06-11
ALL	1	A0565929	FLTR,FLAT,10.25OD,POLYEST,GLZD,SLC/RL/IL02-04, SLC//RL/IL06-11, CSL/RL/IL06-11
ALL	1	161.00214.00	FLTR,FLAT,10.25OD,WIRE,20 MESH,SRC/H/I02-04
ALL	1	161.01676.00	FLTR,FLAT,10.25OD,PERF,SS
ALL	1	A0565932	FLTR,FLAT,10.25OD,NYL,150 MESH,SLC/RL/IL02-04, SLC//RL/IL06-11, CSL/RL/IL06-11

Figure 24: Typical SRC02-16, SSR/CSR06-45 Series Vacuum Receiver Exploded View (Post May 2003)

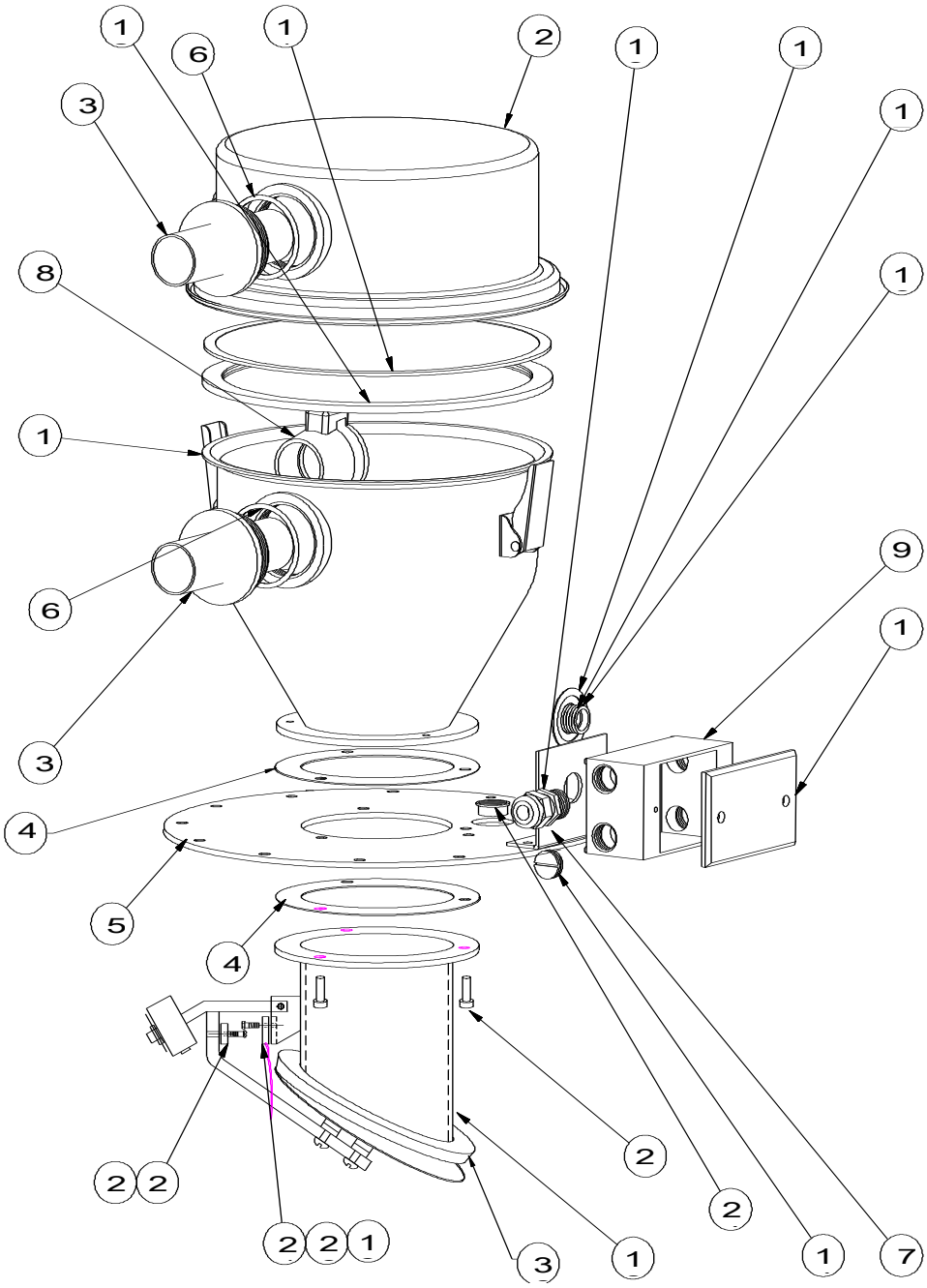


Figure 25: SRC02-16 Series Vacuum Receiver Parts List (Post-May 2003)

See Figure 24 on the previous page for parts location.

Item	Model no.	Quantity	Part no.	Description
1.	SRC02, SSR/CSR06	1	A0563504	CONE, WELD, 9" DIA.
2.	SRC02-04, SSR/CSR06-11	1	A0556507	COVER, WELD, 9" DIA.
3.	SRC02-04, SSR/CSR06-11	2	A0556504	TUBE, INLET/OUTLET, 1-1/2"
4.	ALL	2	A0563513	GASKET, THROAT, SEAL
5.	SRC02-16	1	A0567621	FLANGE, MTG., 12" DIA.
6.	SRC02-04, SSR/CSR06-11	2	A0553728	ORING, SILICONE, AS568-228
7.	SRC02-16, SSR/CSR06-45	1	A0563516	BRACKET, J BOX
8.	SRC02-04, SSR/CSR06-11	1	A0559419	CHECK VALVE, 1.5" URETHANE
9.	ALL	1	A0541036	BOX, SINGLE GANG, 4 X 2 X 2
10.	ALL	1	A0541037	COVER, BOX, SINGLE GANG, 4 X2
11.	SRC02-04, SSR/CSR06-11	1	A0556532	SCREEN, SSTL, 10 MESH
12.	SRC02-04, SSR/CSR06-11	1	A0556821	GASKET, U CHANNEL, 10" DIA.
13.	SRC02-16, SSR/CSR06-45	1	A0541039	CORD GRIP, ½", 0.270 – 0.480
14.	ALL	3	A0541038	PLUG, BOX, GANG, ½" NPT
15.	SRC02-16, SSR/CSR06-45	1	A0003254	WASHER, REDUCER, 0.75" X 0.5"
16.	SRC02-16, SSR/CSR06-45	1	A0003217	NIPPLE, CONDUIT, ½" NPT
17.	SRC02-16, SSR/CSR06-45	1	A0548359	PLUG, NYLON, 5/8"
18.	SRC02-16, SSR/CSR06-45	1	A0567620	ASSEMBLY, 4" ANGLED THROAT S.S
19.	SRC30, SSR/CSR85	1	A0533925	SWITCH, REED, SPST, NO
20.	ALL	2	A0567628	SCREW, BTNHD PHILLIPS, #6-32 X ½ LG. SS
21.	ALL	2 FT.	W00000890	HOSE, RUBBER, BLK, ¼" X 1/16"
22.	ALL	1	A0533924	MAGNET CERAMIC
23.	ALL	1	A0567627	SCREW, FLTHD, PHILLIPS, #6-32 X ½" LG. SS
24.	SRC	1	A0563533	VENT, LOUVER, 1" DIA.
25.	OPT.	1	A0559420	CHECK VALVE, 2.0", URETHANE
26.	SRC02-04, SSR/CSR06-11	2	A0556505	TUBE, INLET/OUTLET, 2" **OPT.**
27.	OPT.	OPT.	A0548190	SWITCH, PROX, DC, NC, NPN
28.	OPT.	OPT.	A0548191	SWITCH, PROX, AC, NC
29.	SRC	3	W00017692	SRC, SHC, ¼ - 20 X 5/8, W/PATCH
30A.	SRC02-16, SSR/CSR06-45	1	W00012559	GSKT, THRT, EPT, BLACK, 4" STD TEMP
30B.	SRC02-16, SSR/CSR06-45	1	W00018024	GSKT, THRT, SILICONE, ORANGE, 4" HI-TEMP
30C.	SRC02-16, SSR/CSR06-45	1	W00016136	GSKT, THRT, NEOPRENE, WHITE, 4", STD TEMP. (FDA)

Figure 26: Typical SRC Series Vacuum Receiver Exploded View
SRC30, SSR/CSR85 (Left) & SRC60, SSR/CSR170 (Right) shown, Post-May 2003)

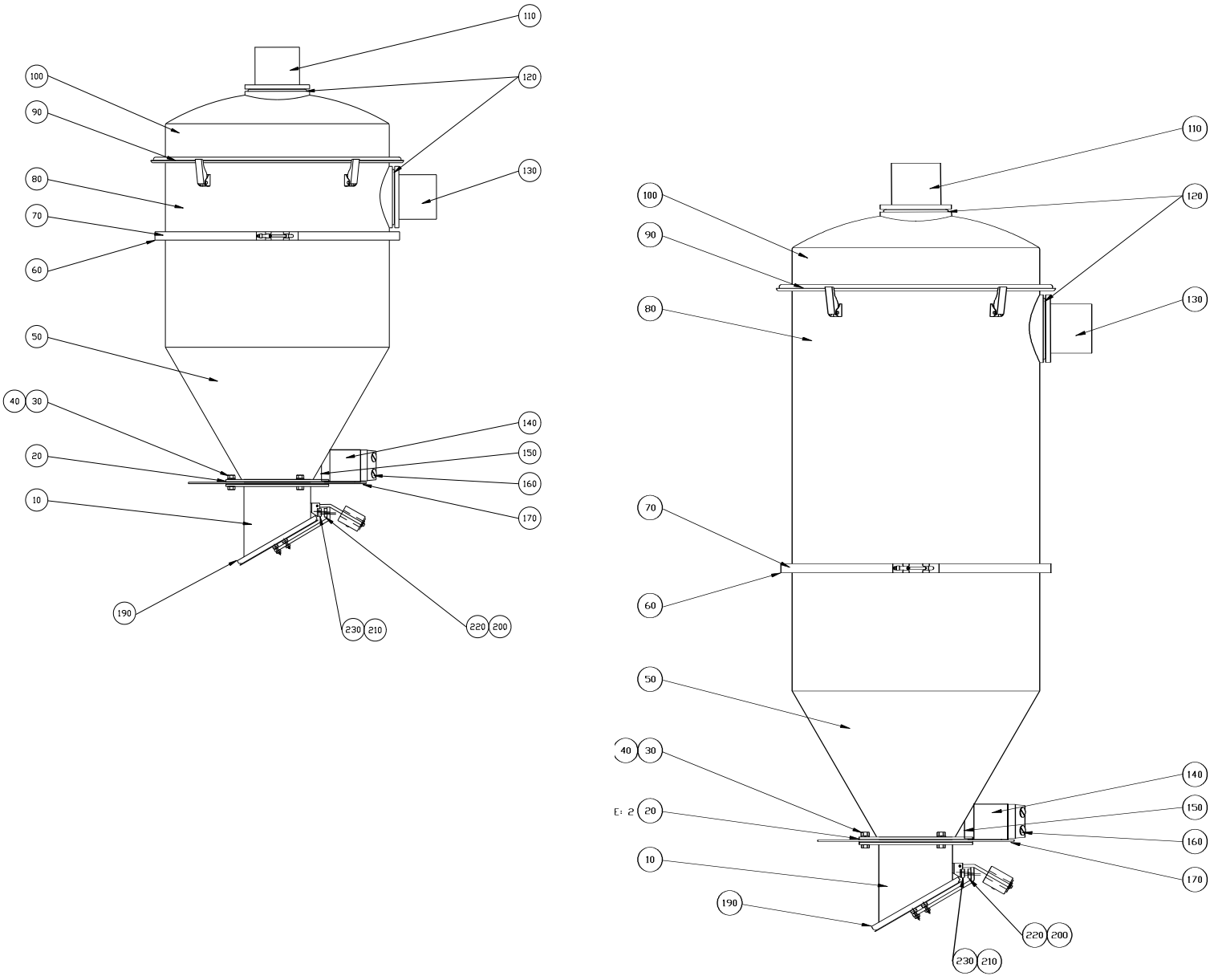


Figure 27: SRC30-60, SSR/CSR85-170 Series Vacuum Receiver Parts List

See Figure 26 on the previous page for parts location.

Item	Model No.	Quantity	Part No.	Description
10	SRC30-60, SSR/CSR85-170	1	A0567619	ASSEMBLY,6" SLANTED THROAT,SS
20	SRC30-60, SSR/CSR85-170	2	A0566923	GASKET,SEAL,6" THROAT
30	SRC30, SSR/CSR85	3	A0069227	BOLT,HEX,3/8-16,SS,W/PATCH
40	SRC30, SSR/CSR85	3	A00069203	WASHER,3/8" LOCK,SS
50	SRC30-60, SSR/CSR85-170	1	A0566910	WELDMENT,CONE,20"DIAMETER,SS
60	SRC30-60, SSR/CSR85-170	1	A0566925	CLAMP,BAND,T-BOLT,20" SS
70	SRC30, SSR/CSR85	6 FT.	A0540240	GASKET,U-CHANNEL,NPRN,0.56 X 0.19 X 0.6W
80	SRC30, SSR/CSR85	1	A0566912	WELDMENT,CYLINDER,20" DIAMETER,SS
90	SRC30-60, SSR/CSR85-170	1	A0566971	FLTR,FLAT,21.25OD,POLYEST GLZD
100	SRC30-60, SSR/CSR85-170	1	A0566906	COVER,20"DIAMETER,SS
110	SRC30-60, SSR/CSR85-170		A0566927	INLET/OUTLET,2IN,OD
			A0566928	INLET/OUTLET,2.5IN,OD
			A0566929	INLET/OUTLET,3IN,OD
			A0566930	INLET/OUTLET,3.5IN,OD
			A0566931	INLET/OUTLET,4IN,OD
			A0566932	TUBE,ELBOW OUTLET,2"OD
			A0566933	TUBE,ELBOW OUTLET,2.50"OD
			A0566934	TUBE,ELBOW OUTLET 3"OD
			A0566935	TUBE,ELBOW OUTLET,3.50"OD
			A0566936	TUBE,ELBOW OUTLET 4" OD
120	SRC30, SSR/CSR85	2	A0566926	ORING,INLET/OUTLET SEAL
130	SRC30-60, SSR/CSR85-170		A0566927	TUBE,STRAIGHT INLET, 2"OD
			A0566928	TUBE,STRAIGHT INLET,2.50"OD
			A0566929	TUBE,STRAIGHT INLET,3"OD
			A0566930	TUBE,STRAIGHT INLET,3.50"OD
			A0566931	TUBE,STRAIGHT INLET,4"OD
			A0566932	TUBE,ELBOW INLET,2"OD
			A0566933	TUBE,ELBOW INLET,2.50"OD
			A0566934	TUBE,ELBOW INLET,3"OD
			A0566935	TUBE,ELBOW INLET,3.50"OD
			A0566936	TUBE,ELBOW INLET,4"OD
140	SRC30-60, SSR/CSR85-170	1	A0541036	BOX,SINGLE GANG,4X2X2
150	SRC30-60, SSR/CSR85-170	1	A0536516	BRACKET,J BOX
160	SRC30-60, SSR/CSR85-170	3	A0541038	PLUG,BOX,GANG,1/2"NPT
170	SRC30-60, SSR/CSR85-170	1	A0566915	FLANGE,MOUNTING,16"SS
180	SRC30-60, SSR/CSR85-170	1	A0541037	COVER,BOX,SINGLE GANG, 4 X2
190	SRC30-60, SSR/CSR85-170	1	W00016928	GSKT,THRT,6",EPT,BLK
			A0540363	GSKT,THRT,6",SILC,ORG
			W00018281	GSKT,THRT,6",NPRN,WHT
200	SRC30-60, SSR/CSR85-170	1	A0567627	SCREW,FLTHD,PHILLIPS,#6-32 X ½"LG SS
210	SRC30-60, SSR/CSR85-170	2	A0567628	SCREW,BTNHD PHILLIPS,#6-32 X 1/2LG SS
220	SRC30-60, SSR/CSR85-170	1	A0533924	MAGNET CERAMIC
230	SRC30, SSR/CSR85	1	A0533925	SWITCH,REED,SPST,NO
240	SRC30-60, SSR/CSR85-170	2 FT.	W00000890	HOSE,RUBBER,BLK,1/4" X 1/16"
250	OPT.	OPT.	A0548190	SWITCH,PROX,DC,NC,NPN
260	OPT.	OPT	A0548191	SWITCH,PROX,AC,NC

Item	Model No.	Quantity	Part No.	Description
270	SRC30-60, SSR/CSR85-170	1	A0559419	CV,URETHANE,1.50ID
280	SRC30-60, SSR/CSR85-170	1	A0559420	CV,URETHANE,2.00ID
290	SRC30-60, SSR/CSR85-170	1	A0559421	CV,URETHANE,2.50ID
300	SRC30-60, SSR/CSR85-170	1	A0559425	CV,URETHANE,2.25ID
310	SRC30-60, SSR/CSR85-170	1	A0559422	CV,URETHANE,3.00ID
320	SRC30-60, SSR/CSR85-170	1	A0566907	FLTR,FLAT,21.25OD,PERF,SS
330	SRC30-60, SSR/CSR85-170	1	161.00254.00	FLTR,FLAT,21.25OD,NYL,MESH, SRC30-60, SSR/CSR85-170

Figure 28: Typical SRH01, SSR/CSR03 Series Vacuum Receiver Exploded View

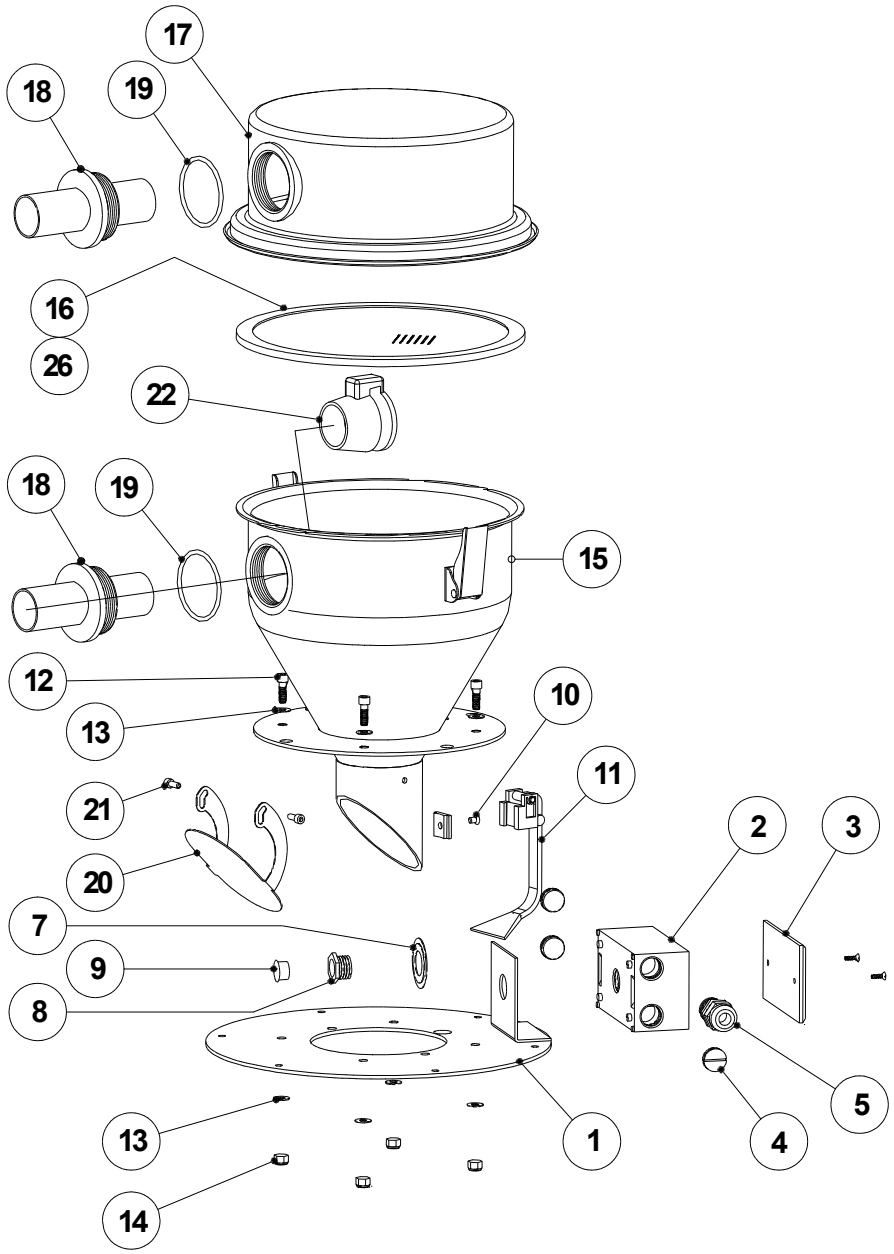
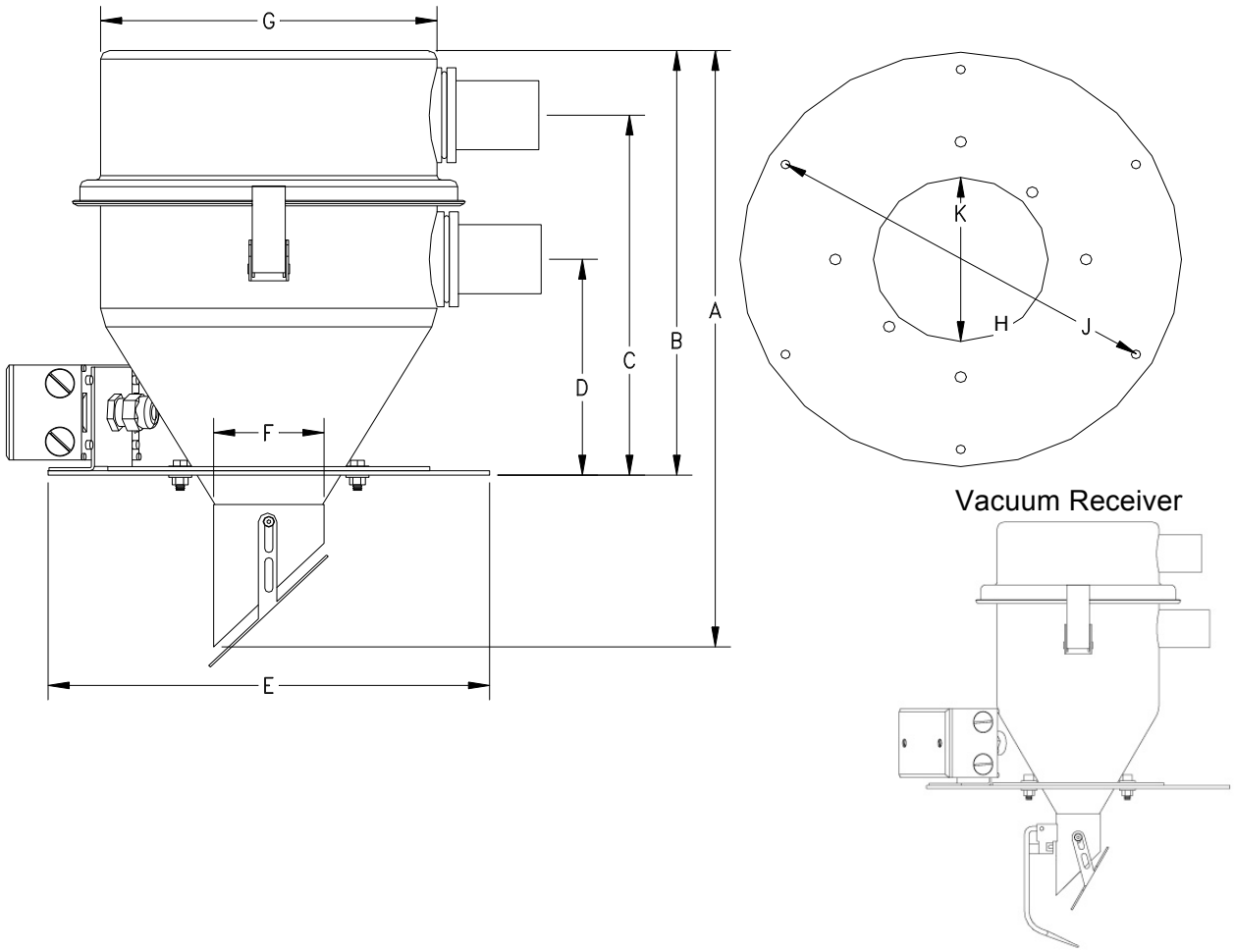


Figure 29: SRH01, SSR/CSR03 Series Vacuum Receiver Parts List

See Figure 28 for parts location.

Item	Model No.	Quantity	Part No.	Description
1	ALL	1	A0556521	FLNG,MOUNT,ADAPT,SRH/L01-16
2	ALL	1	A0541036	BOX,GANG,SNGLE,4X2X2,UL,WETLOC
3	ALL	1	A0541037	BOX,GANG,SNGLE,COVER,BLNK,GSKT
4	ALL	3	A0541038	BOX,GANG,PLUG,1/2"NPT,UL
5	ALL	1	A0541039	CORD,GRIP,1/2",.270-.480 #3231
7	ALL	1	A0003254	RDUC,WSHR,.75"X.50",STEEL
8	ALL	1	A0003217	CDUT,NIPPLE,1/2" #CN 50
9	ALL	1	A0548359	PLUG,HEYCO,BLK,5/8", #2663
10	ALL	1	A0558402	SCR,FLAT,CSUNK,10-32X3/8,NYLOC
11	ALL	1	A0556805	SW,ASSY,NC,LEVEL SENSOR,SRH/L
12	ALL	4	A0553718	SCR,SHC,SS,1/4-20X3/4
13	ALL	8	W00002373	WASHER,FLAT,1/4"
14	ALL	4	W00016426	NUTM1/4-20,ZINC PLATED,NYLOC
15	SRH01, SSR/CSR03	1	A0553741	CONE,WELD,6"ID,SSTL,SRX01, SSR/CSR03
	SRH02, SSR/CSR06	1	A0553742	CONE,WELD,9"ID,SSTL,SRX02, SSR/CSR06
	SRH04, SSR/CSR11	1	A0553743	CONE,WELDMENT,0.4CU FT
	SRH08, SSR/CSR23	1	A0553744	CONE,WELD,14"ID,SSTL,SRX08, SSR/CSR23
	SRH16, SSR/CSR45	1	A0553745	CONE,WELD,14"ID,SSTL,SRX16, SSR/CSR45
16	SRH01, SSR/CSR03	1	A0556531	FLTR,FLAT,WIRE,6"OD,SRH/I01, SSR/SSI03, CSR/CSI03
	SRH02,04. SSR/CSR06-11	1	A0556532	FLTR,FLAT,WIRE,9"OD,SRH/I02/04, SSR/SSI06-11, CSR/CSI06-11
	SRH08,16, SSR/CSR23-45	1	A0556533	FLTR,FLAT,WIRE,14"OD,SRH/I08/16, SSR/SSI23-45, CSR/CSI23-45
17	SRH01, SSR/CSR03	1	A0556506	CVR,WELD,6"ID,SSTL,SRI/H01, SSR/CSR03
	SRH02,04. SSR/CSR06-11	1	A0556507	CVR,WELD,9"ID,SSTL,SRI/H02/04, SSR/SSI06-11, CSR/CSI06-11
	SRH08,16, SSR/CSR23-45	1	A0556508	CVR,WELD,14"ID,SSTL,SRI/H08/16, SSR/SSI23-45, CSR/CSI23-45
18	SRH02,04. SSR/CSR06-11	2	A0556504	TUBE,IN/OUT,1.5",SRX02-04, SSR/CSR06-11
			A0556505	TUBE,IN/OUT,2.0"SRX02-04, SSR/CSR06-11
			A0555796	TUBE,IN/OUT,2.5",SRX02-04, SSR/CSR06-11
	SRH08,16, SSR/CSR23-45	2	A0556518	TUBE,IN/OUT,2.0",SRX08-16, SSR/SSI23-45, CSR/CSI23-45
			A0556519	TUBE,IN/OUT,2.5",SRX08-16, SSR/SSI23-45, CSR/CSI23-45
			A0556520	TUBE,IN/OUT,3.0",SRX08-16, SSR/SSI23-45, CSR/CSI23-45
19	SRH02,04. SSR/CSR06-11	2	A0553728	ORNG,SIL,2,2 ¾ ID X 0.139 THK
	SRH08,16, SSR/CSR23-45		A0553728	ORNG,SIL,3.234 ID X 0.139 THK
20	SRH01, SSR/CSR03	1	A0556503	FLAP,DISCHARGE,SS,SRXX01, SSR/CSR03
	SRH02,04. SSR/CSR06-11	1	A0553731	FLAP,DISCHARGE,SS,SRXX02-04, SSR/CSR23-45
	SRH08,16, SSR/CSR23-45	1	A0553730	FLAP,DISCHARGE,SS,SRXX08-16, SSR/SSI23-45, CSR/CSI23-45
21	ALL	2	A0556822	SCR,CAP,HEX,SOC,HD,10-32X1/2
22	SRH02,04. SSR/CSR06-11	1	W00000990	VLV,CHECK,INT,1.5" TUBE,POLY
	SRH02,16, SSR/CSR06-45	1	A0559420	VLV,CHECK,URETHANE,2.0"
	SRH08,16, SSR/CSR23-45	1	A0559421	VLV,CHECK,URETHANE,2.5"
	SRH08,16, SSR/CSR23-45	1	W00000995	VLV,CHECK,INT,3.0" TUBE,POLY
23	ALL	2	A0536966	CONN,WIRE NT,IDEAL,#A0/A1
24	SRH02,16, SSR/CSR06-45	2	W00532685	GSKT,O-RING,PARKER,#2-017
25	SRH02,16, SSR/CSR06-45	1	A0548190	SW,PROX,DC,18MM,NC,NPN,3 WIRE
	SRH02,16, SSR/CSR06-45	1	A0548191	SW,PROX,AC/DC,18MM,NC,2 WIRE
26	SRH01, SSR/CSR03	1	A0556820	GSKT,U-CHNL,NPRN,.38X.20X.06W
	SRH02,04. SSR/CSR06-11	1	A0556621	GSKT,U-CHNL,NPRN,50X,20X,06W
	SRH08,16, SSR/CSR23-45	1	A0559790	GSKT,U-CHNL,NPRN,50X,20X,06W
27	ALL	1	A0505648	GROM,BLK,0.5625X0.25X

Figure 30: SRH01, SSR/CSR03 Series Stainless Steel Vacuum Receiver



Dimensions

Model SRH, SSR/CSR	Cu. ft.	Dimensions (inches)									
		A	B	C	D	E	F	G	H ①	J ②	K
SRH01, 03	0.1	14.88”	10.63”	9.38”	6.38”	12”	1.75”	6.38”	5.50”	11”	6.75”

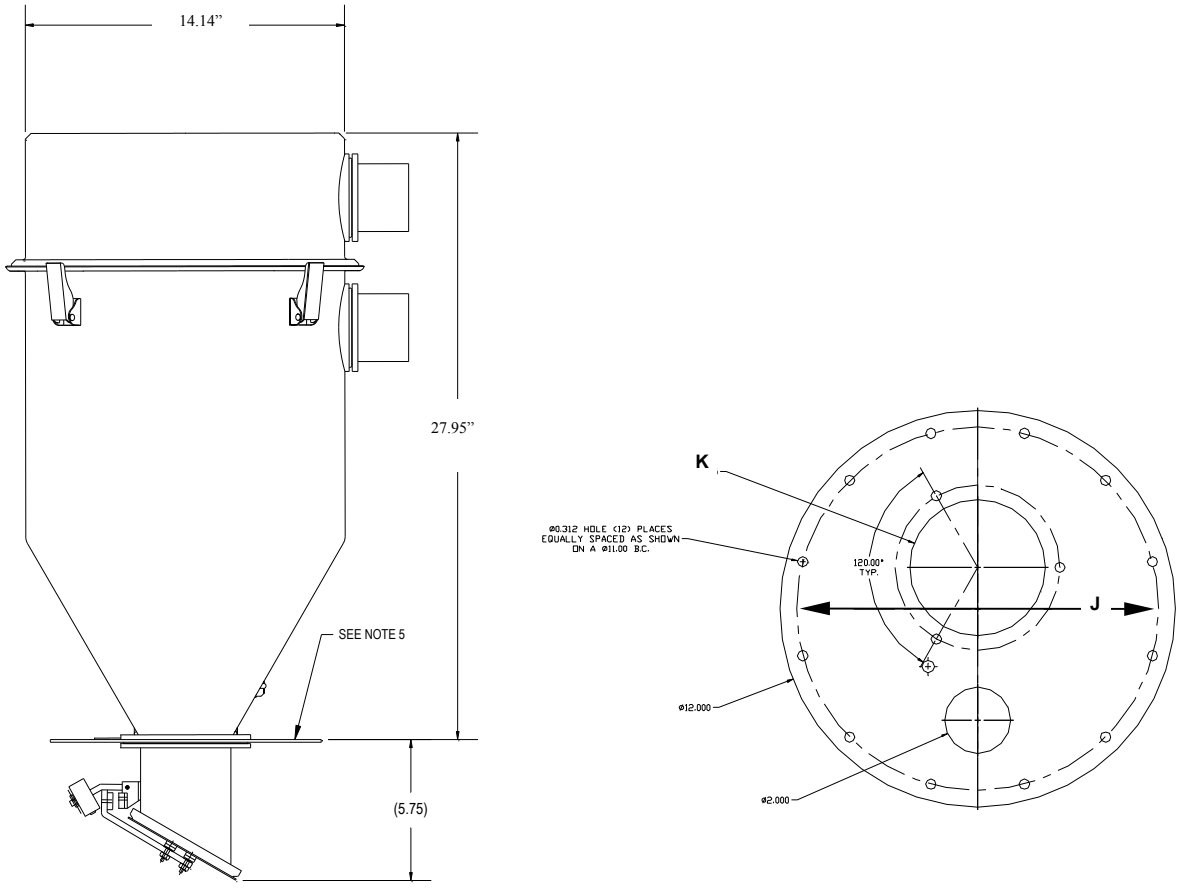
Model SRH, SSR/CSR	Liters	Dimensions (cm)									
		A	B	C	D	E	F	G	H ①	J ②	K
01, 03	2.8	38	27	24	16	31	4.4	16.2	14	28	17

① 5⁄16”/0.3125” (8.00 mm) -diameter holes, two (2) places equally spaced.

② 1⁄4”/0.2500” (6.35 mm) -diameter holes, six (6) places equally spaced; **H *is standard mounting hole location*.**

Figure 31: SRC 02-16, SSR/CSR06-45 Stainless Steel Vacuum Receiver Dimensions

SRC16, SSR/CSR45 Vacuum Receiver (shown)



(Mounting Flange -10" Diameter Cut-Out)

	Dimensions (inches)											
Model # SRC, SSR/CSR	**Cu. ft.**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H ①**	**I ②**	**J**	**K**
02, 06	0.2	16.75"	11.5"	12.11"	5.5"	12"	4"	9.23"	N / A	11"	10"	4.5"
04, 11	0.4	22.38"	17.5"	18.46"	11.5"							
08, 23	0.8	26"	20.13"	20.97"	11.6"			14.17"				
16, 45	1.6	32.25"	26.38"	27.95"	18.1"							

Metric Standards • Dimensions in cm

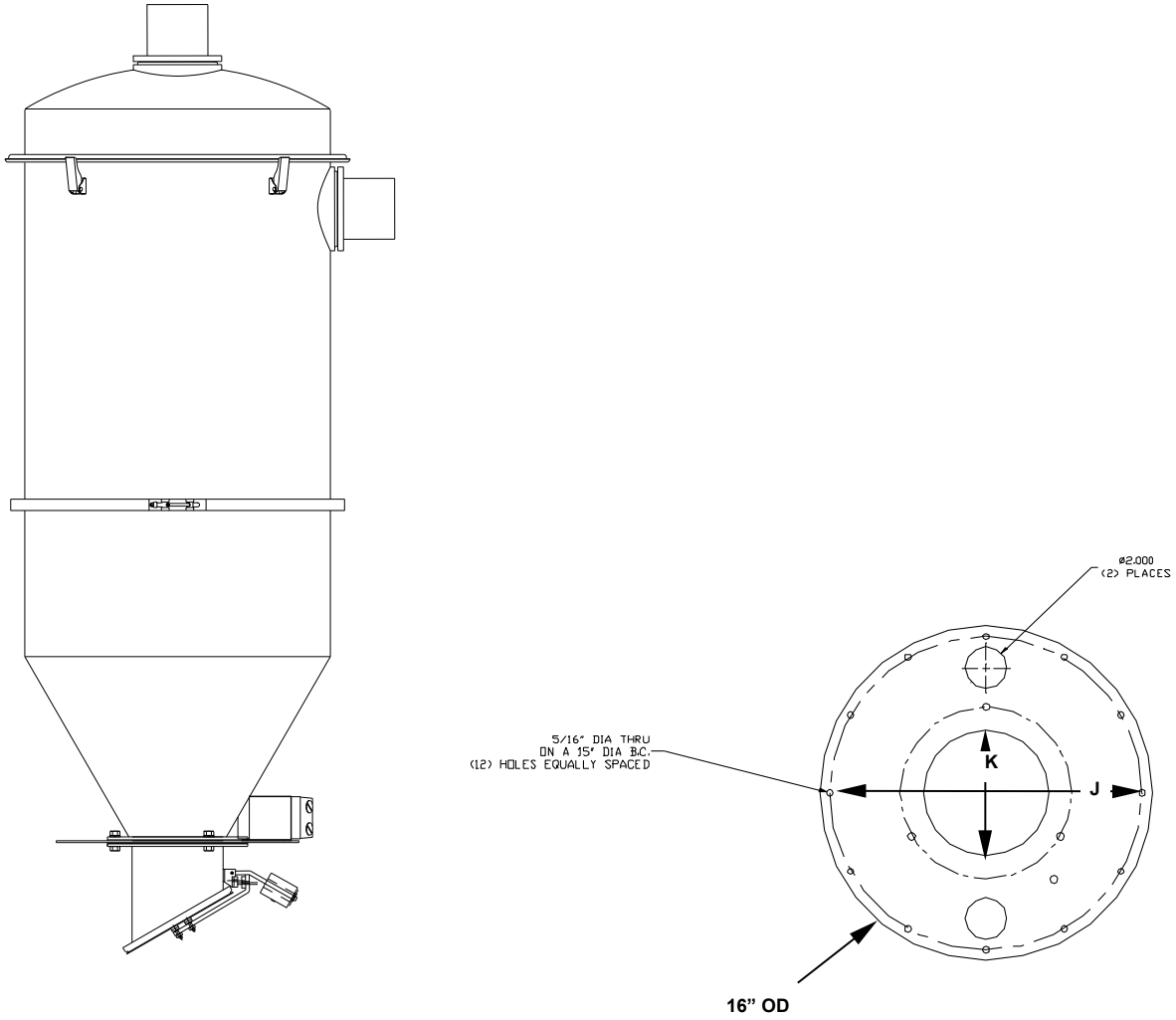
Model # SRC, SSR/CSR	**Liters**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I ②**	**J**	**K**
02, 06	*5.6*	*42.5*	*29.2*	*30.76*	*14.0*	*30.5*	*10.2*	*36.00*	*N/A*	*27.9*	*25.4*	*11.4*
04, 11	*11.3*	*56.8*	*44.4*	*46.89*	*29.2*							
08, 23	*22.6*	*66.1*	*51.1*	*53.26*	*29.5*							
16, 45	*45.3*	*81.9*	*67.0*	*71.00*	*46.1*							

① 5/16"/0.3125" (*8.00 mm*) -diameter holes, two (2) places equally spaced.

② 1/4"/0.2500" (*6.35 mm*) -diameter holes, six (6) places equally spaced; **I *is standard mounting hole location*.**

Figure 32: SRC 30-60, SSR/CSR85-170 Stainless Steel Vacuum Receiver Dimensions

SRC60, SSR/CSR80 Vacuum Receiver (shown)



(Mounting Flange -14" Diameter Cut-Out)

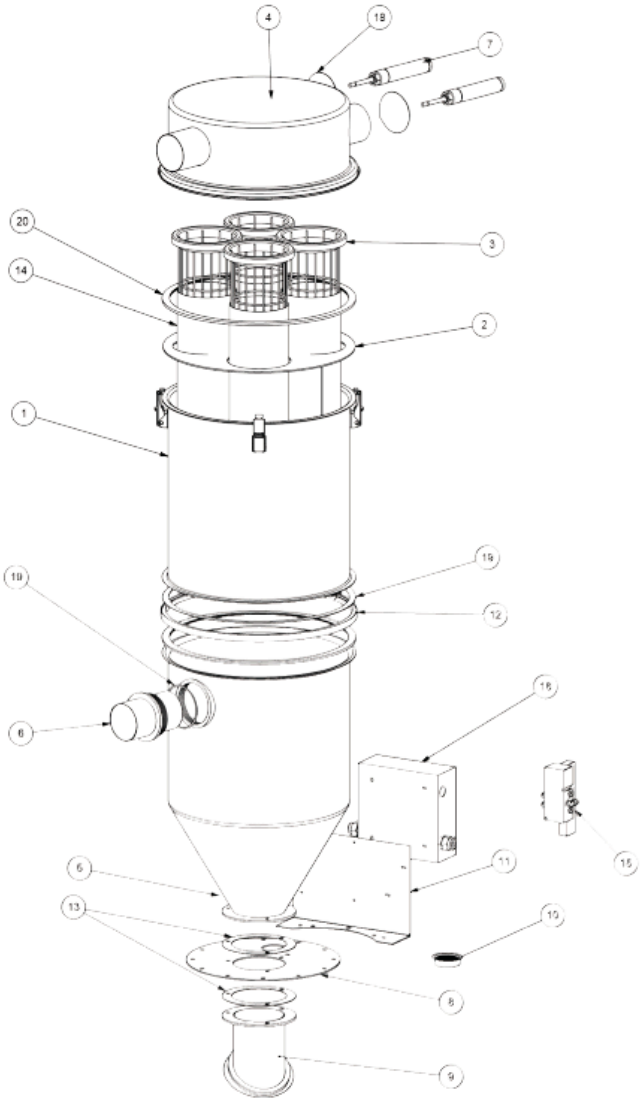
	Dimensions (inches)										
Model # SRC, SSR/CSR	**Cu. ft.**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H ①**	**J**	**K**
30, 85	3.0	47	39	NA	26	16	6	20	NA	15	7
60, 170	6.0	63	55		42						

Metric Standards • Dimensions in cm

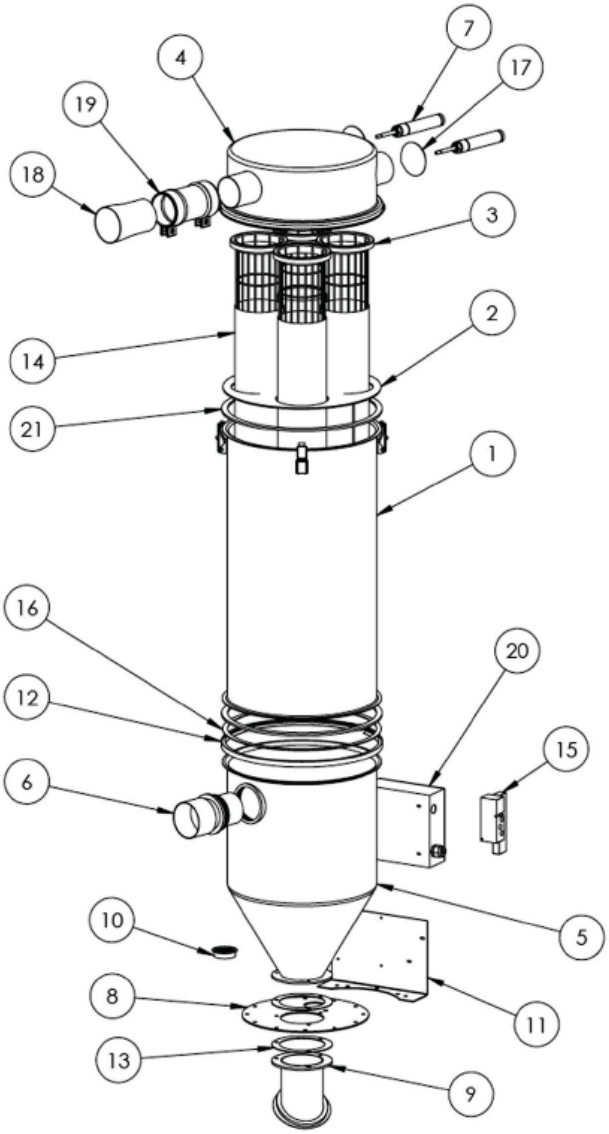
Model # SRC, SSR/CSR	**Liters**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**
30, 85	*85*	*119*	*100*	*N/A*	*66*	*41*	*15*	*51*	*N/A*	*38*	*19*
60, 170	*170*	*159*	*140*		*106*						

① 5/16"/0.3125" (*8.00 mm*) -diameter holes, two (2) places equally spaced.② 1/4"/0.2500" (*6.35 mm*) -diameter holes, six (6) places equally spaced; **I *is standard mounting hole location.***

Figure 33: SRC/SSR/CSR AV Drawing



SRC16, SSR/CSR45
AV-5



SRC16, SSR/CSR45
AV-10

Figure 34

Spare Parts List SRC/AV-5, SSR/AV-5, CSR/AV-5:

Part Number	Description
872.00955.00	RACK,FLTR,SRC/AV
A0565693	CLP,BAND,T-BLT,SSTL,14",PHL
161.00245.00	FLTR,BAG,SNAP,4.625OD X 12.5LG,POLY,FELT,ACRYLIC COATED (QTY 4)
161.00256.00	FLTR,BAG,SNAP,4.62OD X 12.5LG,POLY FELT,TEFLON COATED (QTY 4)
A0556813	CYL,AIR,1.06BORE,2"ST
A0555773	PLGR,3.25OD,URE,WHT,5/16-24CS (QTY 2)
842.00020.00	PLGR,3.25"OD,HI-TEMP,5/16ORG (QTY 2)
732.00225.00	VLV,SOL,DUAL 3WAY,1/4,24VDC,NC
892.02081.00	ASSY,CNTL,FLTR CLN,24VDC
732.00224.00	VLV,SOL,DUAL 3WAY,1/4,115VAC

Spare Parts List SRC/AV-10, SSR/AV-10, CSR/AV-10:

Part Number	Description
872.00955.00	RACK,FLTR,SRC/AV
A0565693	CLP,BAND,T-BLT,SSTL,14",PHL
161.01770.00	FLTR,BAG,SNAP,4.625OD X 24.5LG POLY FELT,ACRYLIC COATED (QTY 4)
161.01822.00	FLTR,BAG,SNAP,4.62OD X 24.5LG POLY FELT,TEFLON COATED (QTY 4)
732.00224.00	VLV,SOL,DUAL 3WAY,1/4,115VAC
732.00225.00	VLV,SOL,DUAL 3WAY,1/4,24VDC,NC
892.02081.00	ASSY,CNTL,FLTR CLN,24VDC
A0555773	PLGR,3.25OD,URE,WHT,5/16-24,CS (QTY 2)
842.00020.00	PLGR,3.25"OD,HI-TEMP,5/16ORG (QTY 2)
A0556813	CYL,AIR,1.06BORE,2"ST

Vacuum Receivers

Models: TF301G, TF301U, TF301S, TF601G, TF601U, TF601S, TF302G, TF302U, TF302S, TF602G, TF602U, TF602S,

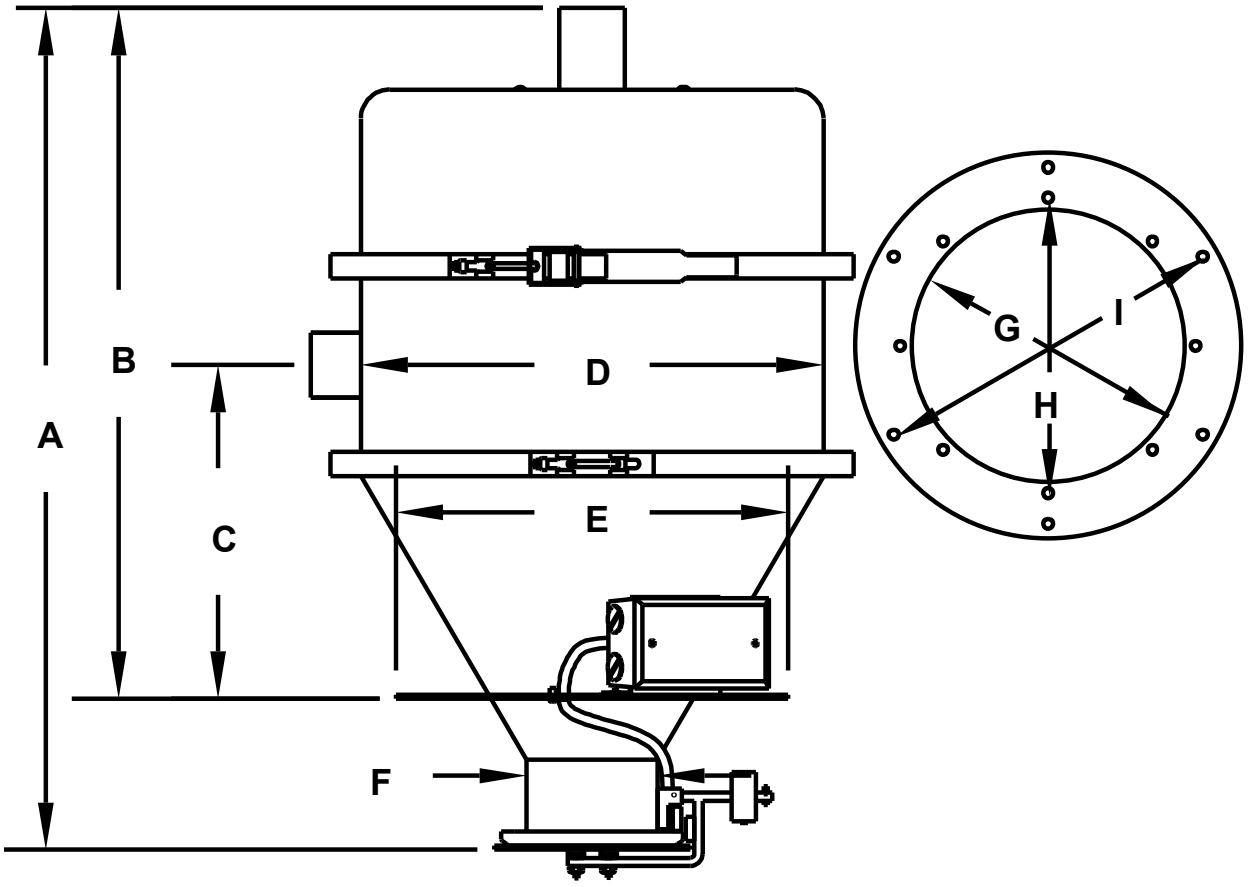
VF301G, VF301U, VF301S, VF601G, VF601U, VF601S, VF302G, VF302U, VF302S, VF602G, VF602U, VF602S

- Bin-Full sensor on flapper dump valve.
- TF receivers are used with time-fill conveying systems.
- VF receivers with proximity sensor are used with volume-fill conveying systems.
- Available in 3.0 (30) and 6.0 (60) cubic foot sizes (85- and 170-liter sizes).
- Available in mild steel (1) or stainless steel (2).
- Most models available with flange (G), suspension (U), or silo (S) mounting systems.
- Individually addressed network-capable distributed I/O control optional.
- Sixteen (16) -mesh stainless steel pellet deflector standard.
- 2” (50 mm) to 3” (76 mm) check valves and material inlets for use with single-line Y systems.
- Adjustable proximity-type material-level sensor: 24 VDC or 115 VAC available.

Options

- Paddle-style level indicator.
- Compressed air filter cleaning controls for individual vacuum hoppers available.
- Glazed polyester, acrylic, and Gore-Tex® filters.

Figure 35: TF/VF Flange-Mount Vacuum Receiver Specifications



	Dimensions (inches)								
cu. ft.	A	B	C	D	E	F	G	H ①	I ②
3.0	40	33 11/16	22 9/16	20	21 7/8	6	16	③	③
6.0	47 5/8	41 7/16	30 9/32	22	21 7/8	6	16	③	③

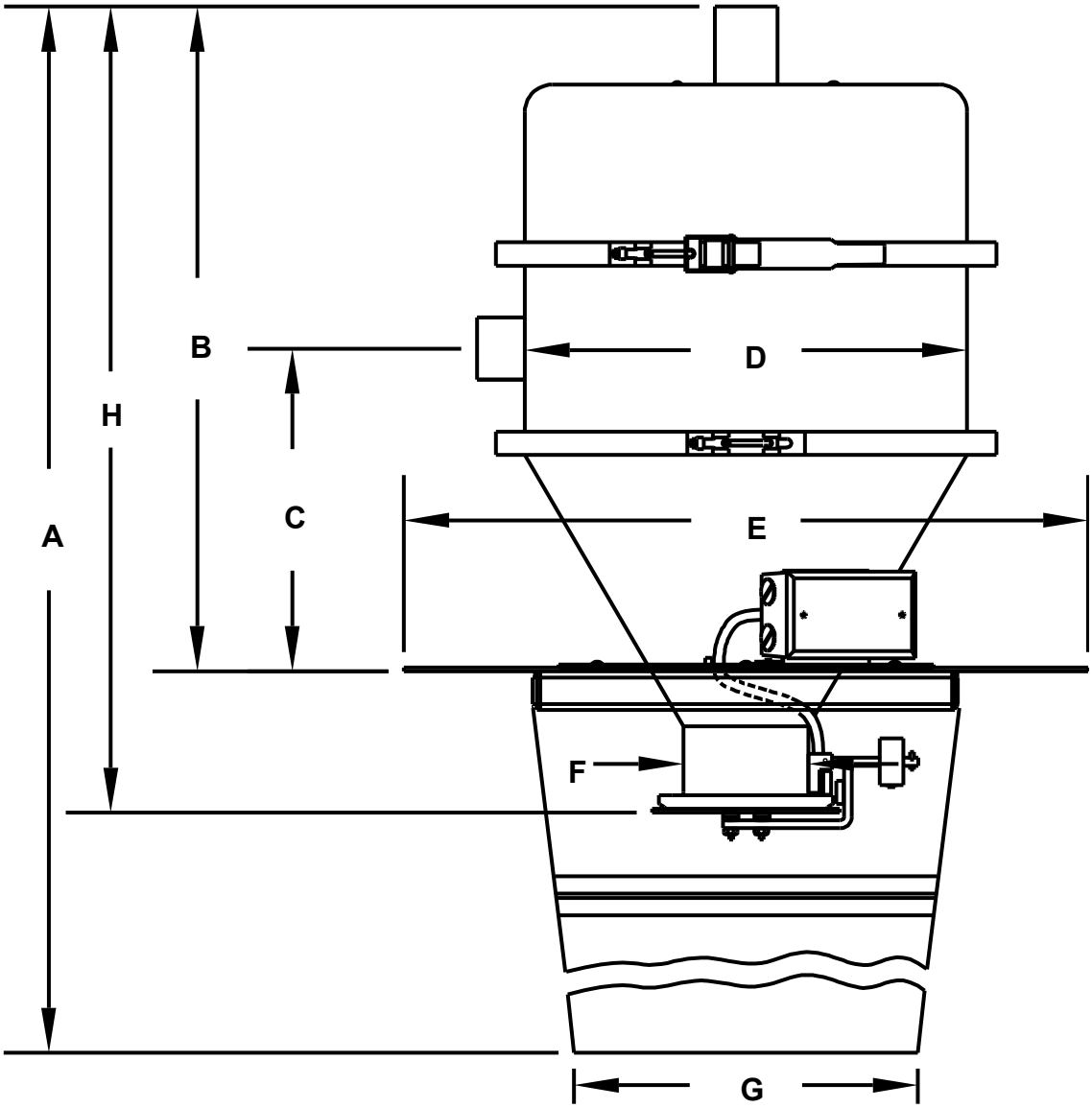
	Dimensions (cm)								
liters	A	B	C	D	E	F	G	H ①	I ②
85	101	85	57	51	55	15	40	③	③
170	120	105	77	56	55	15	40	③	③

① 13/64" (5 mm) -diameter holes — 8 places, equally spaced.

② 13/64" (5 mm) -diameter holes — 6 places, equally spaced.

③ Mounting holes provided by customer.

Figure 36: TF/VF Suspension-Mount Vacuum Receiver Specifications

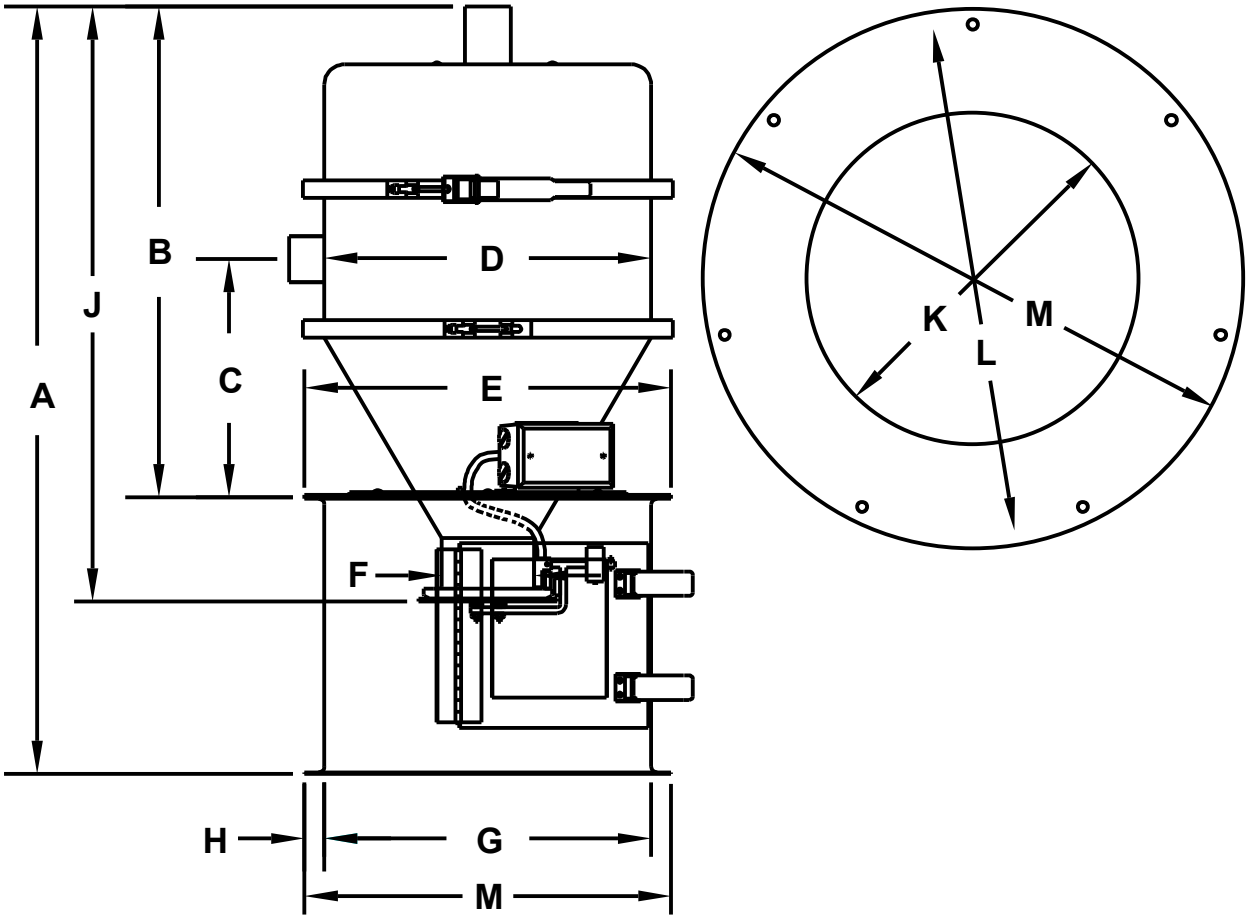


cu. ft.	Dimensions (inches)							
	A	B	C	D	E	F	G	H
3.0	$69^{11}/_{16}$	$33^{11}/_{16}$	$22^{9}/_{16}$	20	30	6	17	40
6.0	$77^{11}/_{32}$	$41^{7}/_{16}$	$30^{9}/_{32}$	22	30	6	17	$47^{7}/_{8}$

liters	Dimensions (cm)							
	A	B	C	D	E	F	G	H
85	177	85	57	51	76	15	43	101
170	196	105	77	56	76	15	43	121

NOTICE ***Mounting holes provided by customer.***

Figure 37: TF/VF Silo-Mount Vacuum Receiver Specifications



cu. ft.	Dimensions (inches)											
	A	B	C	D	E	F	G	H	J	K	L	M
3.0	50	33 11/16	22 9/16	20	21 7/8	6	20	1 3/4	40	22 7/32	22 ①	23 1/2
6.0	57 5/8	41 7/16	30 9/32	22	21 7/8	6	20	1 3/4	47 5/8	22 7/32	22 ①	23 1/2

liters	Dimensions (cm)											
	A	B	C	D	E	F	G	H	J	K	L	M
85	127	85	57	51	55	15	51	4	101	56	56 ①	60
170	146	105	77	56	55	15	51	4	121	56	56 ①	60

① Mounting holes provided by customer.

NOTICE ***9/16" (14 mm) -diameter holes; 7 places, equally spaced.***

Figure 38: TF/VF Vacuum Receiver Spare Parts List, Models TF/VF30X to TF/VF60X

Part number	Part description
A0539992	Flapper disk, 30X-60X
A0540240	Gasket, U-channel neoprene, 30X-60X
W00016928	Gasket, throat, 30X-60X
A0540277	Filter, cart, mesh, 30X-60X
A0533925	Switch, reed, HPR discharge
A0536225	Switch, prox, volume fill, 115 VAC
A0533934	Switch, prox, volume fill, 24 VDC

NOTICE

Refer to the Bill of Materials report included in the Customer Information Packet for a complete listing of parts.

Atmospheric Valves

Models: AV1.5, AV2, AV2.25, AV2.5, AV3

- Mount on cover of vacuum hopper to direct vacuum into hoppers.
- Relieves vacuum by allowing an in-rush of atmospheric air into the system.
- Compressed air-operated.
- Selection of black or white neoprene plungers or available high temperature plungers.
- 24 VDC or 115 VAC control voltage solenoid.
- Adds only six inches (15 cm) to the height of vacuum hoppers and filter chambers.

Figure 39: Typical Atmospheric Valve

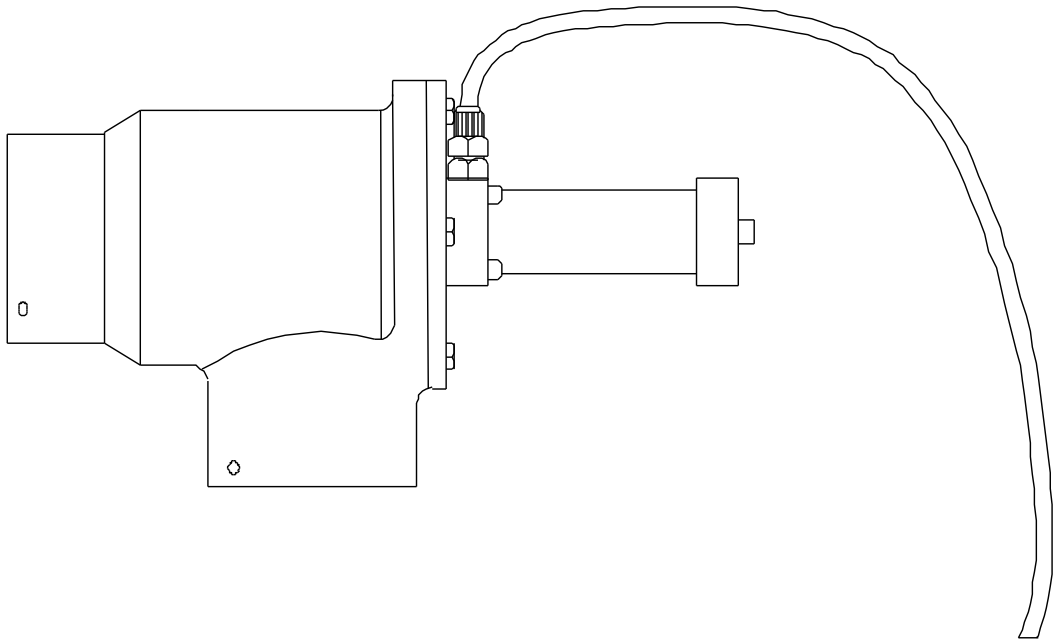


Figure 40: Spare Parts List AV Valves

Spare Parts List AV 1.5:

Model	Part Number	Description
AV1.5	W00000146	ORNG,BUNA70,1.484ID X 0.139CS
AV1.5	W00017807	GSKT,AV/SV1.50.VELOMOID
AV1.5	W00001959	PLGR,1.61OD,EPT,BLK,3/8-16CS
AV1.5	W00017688	CYL,AIR,S1311,1.5-15HP,2 HOLE,CYL AIR,2HLE,OP CYL,ROD END
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Spare Parts List AV2:

Model	Part Number	Description
AV2	W00000145	ORNG,BUNA70,1.984ID X 0.139CS
AV2	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
AV2	W00017688	CYL,AIR,S1311,1.5-15HP,2 HOLE,CYL AIR,2HLE,OP CYL,ROD END
AV2	W00013524	PLGR,2.38OD,EPT,BLK,3/8-16,CS
SOLENOID VALVES	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVES	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Spare Parts List AV2.25:

Model	Part Number	Description
AV2.25	W00001470	ORNG,2-1/2OD X 2-1/4OD
AV2.25	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
AV2.25	W00017688	CYL,AIR,S1311,1.5-15HP,2 HOLE,CYL AIR,2HLE,OP CYL,ROD END
AV2.25	W00013524	PLGR,2.38OD,EPT,BLK,3/8-16,CS
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Spare Parts List AV2.5:

Model	Part Number	Description
AV2.5	W00001045	ORNG,BUNA70,2.484ID X 0.139CS
AV2.5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
AV2.5	W00017688	CYL,AIR,S1311,1.5-15HP,2 HOLE,CYL AIR,2HLE,OP CYL,ROD END
AV2.5	W00001958	PLGR,2.86OD,EPT,3/8-16,CS
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Spare Parts List AV3:

Model	Part Number	Description
AV3	W00001738	ORNG,BUNA70,2.984ID X 0.139CS
AV3	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
AV3	W00017688	CYL,AIR,S1311,1.5-15HP,2 HOLE,CYL AIR,2HLE,OP CYL, ROD END
AV3	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Sequence T-Valves

Models: SV1.5, SV2, SV2.25, SV2.5, SV3, SV4, SV4.5, SV5

- Mount in vacuum header piping above vacuum hoppers to direct vacuum into hoppers.
- Used with pumps that have blowback feature and critical dried resins because no atmospheric air is introduced when vacuum is relieved.
- Compressed air operation.
- Selection of black or white neoprene plungers, or high temperature silicone plungers.
- 24 VDC or 115 VAC control voltage solenoid.
- Distributed I/O capability.

Figure 41: Typical Sequence T-Valve

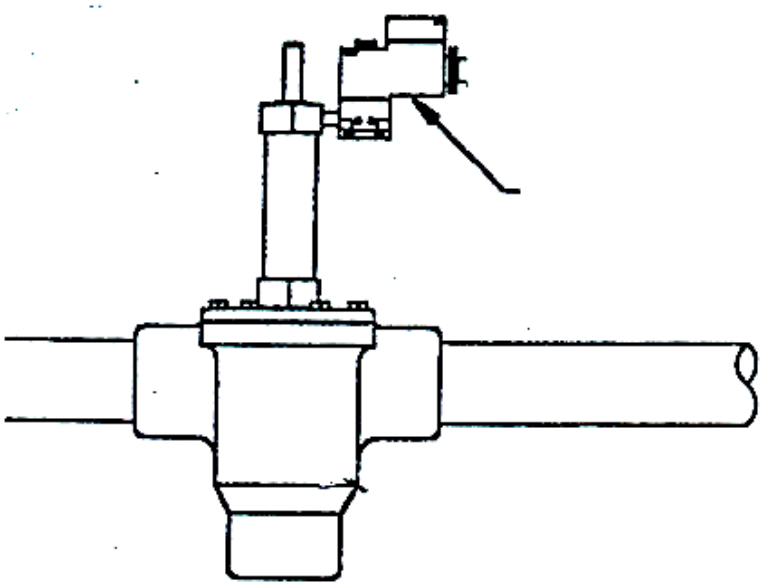


Figure 42: Spare Parts List SV Valves

Spare Parts List SV1.5:

Model	Part Number	Description
SV1.5	W00000146	ORNG,BUNA70,1.484ID X 0.139CS
SV1.5	W00017807	GSKT,AV/SV1.50,VELOMOID
SV1.5	W00051670	CYL,AIR,S1626,1.125 BORE,1.5ST
SV1.5	W00001959	PLGR,1.61OD EPT,BLK,3/8-16,CS
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT,CND CONN

Spare Parts List SV2:

Model	Part Number	Description
SV2	W00000145	ORNG,BUNA70,1.984ID X 0.139CS
SV2	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
SV2	W00051670	CYL,AIR,S1626,1.125 BORE,1.5ST
SV2	W00013524	PLGR,2.38OD,EPT,BLK,3/8-16,CS
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Spare Parts List SV2.25:

Model	Part Number	Description
SV2.25	W00001470	ORNG,2-1/2OD X 2-1/4OD
SV2.25	W00017811	GSKT,AV/SV2.00-2.25,VELOMOID
SV2.25	W00051670	CYL,AIR,S1626,1.125 BORE,1.5ST
SV2.25	W00013524	PLGR,2.38OD,EPT,BLK,3/8-16,CS
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Spare Parts List SV2.5:

SV2.5	W00001045	ORNG,BUNA70,2.848ID X 0.139CS
SV2.5	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
SV2.5	W00051670	CYL,AIR,S1626,1.125 BORE,1.5ST
SV2.5	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC.1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOIDVALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Spare Parts List SV3:

Model	Part Number	Description
SV3	W00001045	ORNG,BUNA70,2.484ID X 0.139CS
SV3	W00017812	GSKT,AV/SV2.50-3.00,VELOMOID
SV3	W00051670	CYL,AIR,S1626,1.125 BORE,1.5ST
SV3	W00001958	PLGR,2.86OD,EPT,BLK,3/8-16,CS
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Spare Parts List SV4/SV4.5/SV5:

Model	Part Number	Description
SV4,SV4.5,SV5	W00003231	ORNG,BUNA70,4.484ID X 0.139CS
SV4,SV4.5,SV5	W00018017	GSKT,VELOMOID,25-30HP NON-R
SV4,SV4.5,SV5	W00017918	CYL,AIR,S1313,25-30HP,UPR VLV
SV4,SV4.5,SV5	W00018112	PLGR,ASSY,5”,DISC SUPT DISC,SUPT,PLGR,NON-REV,VLV
SOLENOID VALVE	A0556722	SOLV,3WAY,24VDC,1/8NPT,CV=.15,CV=.15,NPT CND CONN
SOLENOID VALVE	A0556723	SOLV,3WAY,120VAC,1/8NPT,CV=0.17,1/2NPT CND CONN

Cartridge-Style Vortex Filter Chamber

Models: VFC225, VFC1000, SFC225, SFC1000, CFC225, CFC100

- For use with standard pumps.
- Two stage cyclone/cartridge filter design.
- Twenty-nine inch (29”/74 cm) -high floor stand for drum discharge.
- Reverse pulse filter element.
- Flapper dump valve and filter shroud.
- Available in mild (51) or stainless steel (52) construction.
- Compressed air filter cleaning 24VDC or 120VAC.

Options

- 45” (114 cm) floor stand with 38” (97 cm) clearance for 55-gallon (208-liter) drum.
- Removable dust can on 29” (74 cm) floor stand.
- Compressed air blowback with 115VAC/24VDC solenoid; controller available separately.

Figure 43: Filter Chamber Spare Parts List VFC, SFC, CFC Models

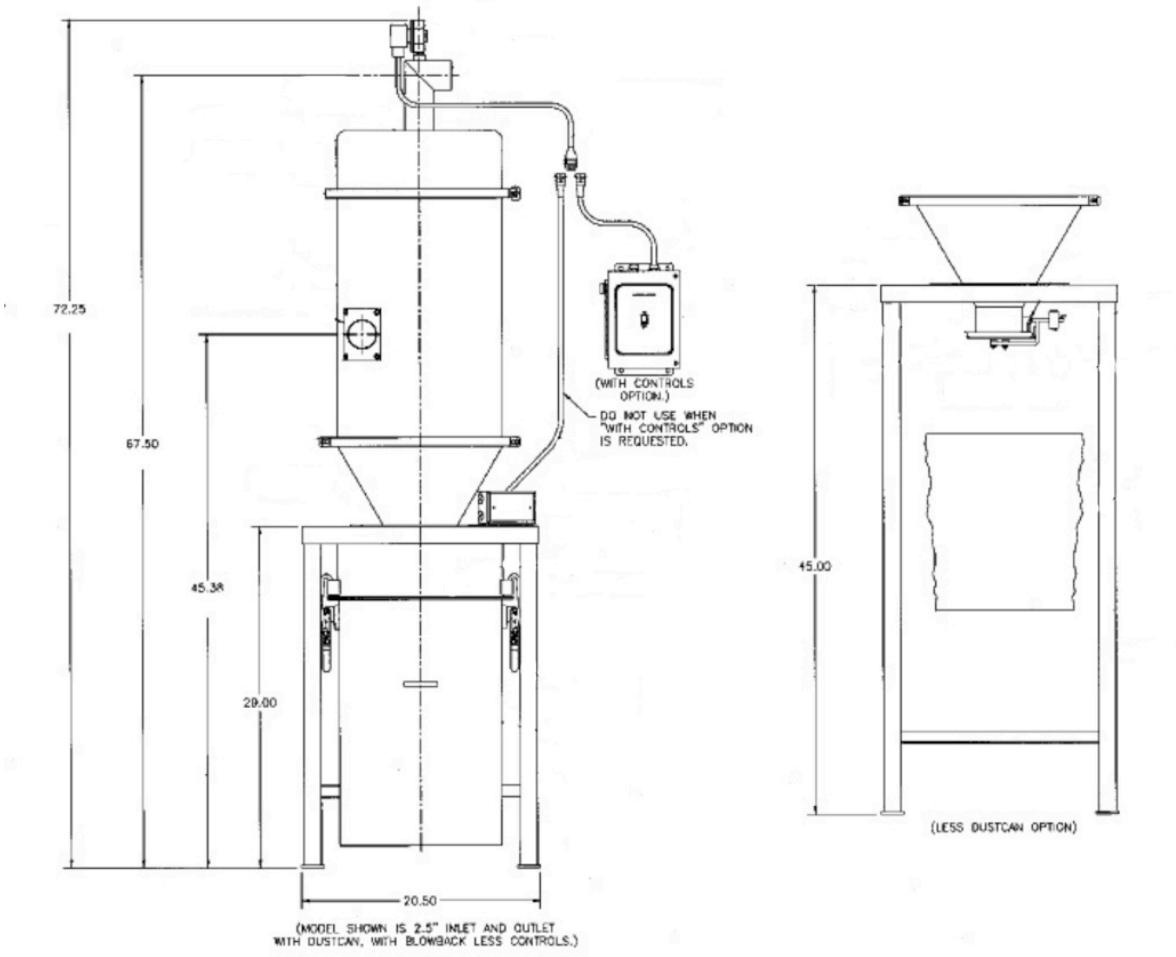
Models VFC225, SFC225, CFC225

Model	Part Number	Description
225	W00012559	GASKET,THRT,NPRN
225	W00016136	GASKET,THRT,FDA
225	W00018024	GASKET,THRT,HI-TEMP
225	A0540240	GASKET,U-CHNL,NPRN
225	A0540241	GASKET,U-CHNL,FDA
225	A0540242	GASKET,U-CHNL,HI-TEMP
225	A0565399	VLV,SOL,DIN CONN,1/2”CONDUIT
225	A0003336	CORD,16/3C,TYPE SO
225	732.00012.02	VLV,SOL,1/2”,5/8,GP,300,115V
225	A0566360	VLV,SOL,1/2”,5/8,GP,300,230/60
225	A0566361	VLV,SOL,1/2”,5/8,GP,300,24VDC
225	A0542155	ASSY,CNTL,BLOWBACK,24VDC
	A0541611	*FUSE,MDL-3/4 (QTY 1)*
	A0542165	*CNTL,PCB,BLOWBACK CNTL*
	A0539361	*CNTL,SERIES 1,VER-II,AC/DC*
	A0542143	*EPRM,BLWBK,SERIES 1,BLOWBACK CONTROL*
225	A0542153	ASSY,CNTL,BLOWBACK,115VAC
	A0541611	FUSE,MDL-3/4 (QTY 1)
	A0542165	CNTL,PCB,BLOWBACK CNTL
	A0539361	CNTL,SERIES 1,VER-II,AC/DC
	A0542143	EPRM,BLWBK,SERIES 1,BLOWBACK CONTROL
225	A0542154	ASSY,CNTL,BLOWBACK,230VAC
	A0542211	FUSE,250V,GL,TD,6.00A,1/4 X 1-1/4 (QTY 2)
	A0542165	CNTL,PCB,BLOWBACK CNTL
	A0539361	CNTL,SERIES 1,VER-II,AC/DC
	A0542143	EPRM,BLWBK,SERIES 1,BLOWBACK CONTROL
225	A0547008	FILTER,CART,WIRE,MESH,10X6X15
225	A0539933	GASKET,FLTR,10”OD,ELE,MVH/VFC
225	W00533542	SHROUD,DRAWSTRING,16” ID X 13” LNG
225	W00001868	SHROUD,FLTR,50#,HPR
225	A0539993	DISC,FLAPPER,HPR,6”,TEFLON COAT

Models VFC1000, SFC1000, CFC1000 (Cont'd)

Model	Part Number	Description
1000	A0561801	GASKET,FLTR,13.88"OD,ELE,VFC/SFC/CFC1000
1000	161.01722.00	FLTR,CART,TFLN,13.84 X 9.5 X 23.88
1000	A0540240	GASKET,U-CHNL,NPRN
1000	W00001868	SHROUD,FLTR,50#,HPR
1000	W00533542	SHROUD,DRAWSTRING,16"ID X 13"LNG
1000	A0539992	DISC,FLAPPER,HPR,6",ALUM
1000	A0547961	VALVE,SOL,1",24VDC
1000	A0547960	VALVE,SOL,1",115VAC
1000	A0547995	VALVE,SOL,1",230VAC
1000	A0542155	ASSY,CNTL,BLOWBACK,24VDC
	A0541611	FUSE,MDL-3/4 (QTY 1)
	A0542165	CNTL,PCB,BLOWBACK CNTL
	A0539361	CNTL,SERIES 1,VER-II,AC/DC
	A0542143	EPRM,BLWBK,SERIES 1,BLOWBACK CONTROL
1000	A0542153	ASSY,CNTL,BLOWBACK,115VAC
	A0541611	FUSE,MDL-3/4 (QTY 1)
	A0542165	CNTL,PCB,BLOWBACK CNTL
	A0539361	CNTL,SERIES 1,VER-II,AC/DC
	A0542143	EPRM,BLWBK,SERIES 1,BLOWBACK CONTROL
1000	A0542154	ASSY,CNTL,BLOWBACK,230VAC
	A0542211	FUSE,250V,GL,TD,6.00A,1/4 X 1-1/4 (QTY 2)
	A0542165	CNTL,PCB,BLOWBACK CNTL
	A0539361	CNTL,SERIES 1,VER-II,AC/DC
	A0542143	EPRM,BLWBK,SERIES1,BLOWBACK CONTROL

Figure 44: VFC, SFC, CFC Series Vortex Filter Chamber Specifications and Dimensions



VFC, SFC, CFC	Floor stand	A		B		C		D		E	
		inches	cm	inches	cm	inches	cm	inches	cm	inches	cm
-225	29” (74 cm) stand	20.50”	52	67.50”	171	45.38”	115	16.50”	42	29”	74
	Optional 45” (114 cm) stand with drum	28.50”	72	83.50”	212	61.38”	156	24.50”	62	45”	114

VFC, SFC, CFC	Floor stand	A		B		C		D		E	
		Inches	cm	inches	cm	inches	cm	inches	cm	inches	cm
-1000	29” (74 cm) stand	26.50”	67	82.38”	209	50.38”	128	22.50”	57	29”	74
	Optional 45” (114 cm) stand with drum	34.50”	88	98.38”	250	66.38”	169	30.50”	77	45”	114

NOTICE ***Dimensions are approximate and subject to change without notice.***

FC Series Bag-Style Filters

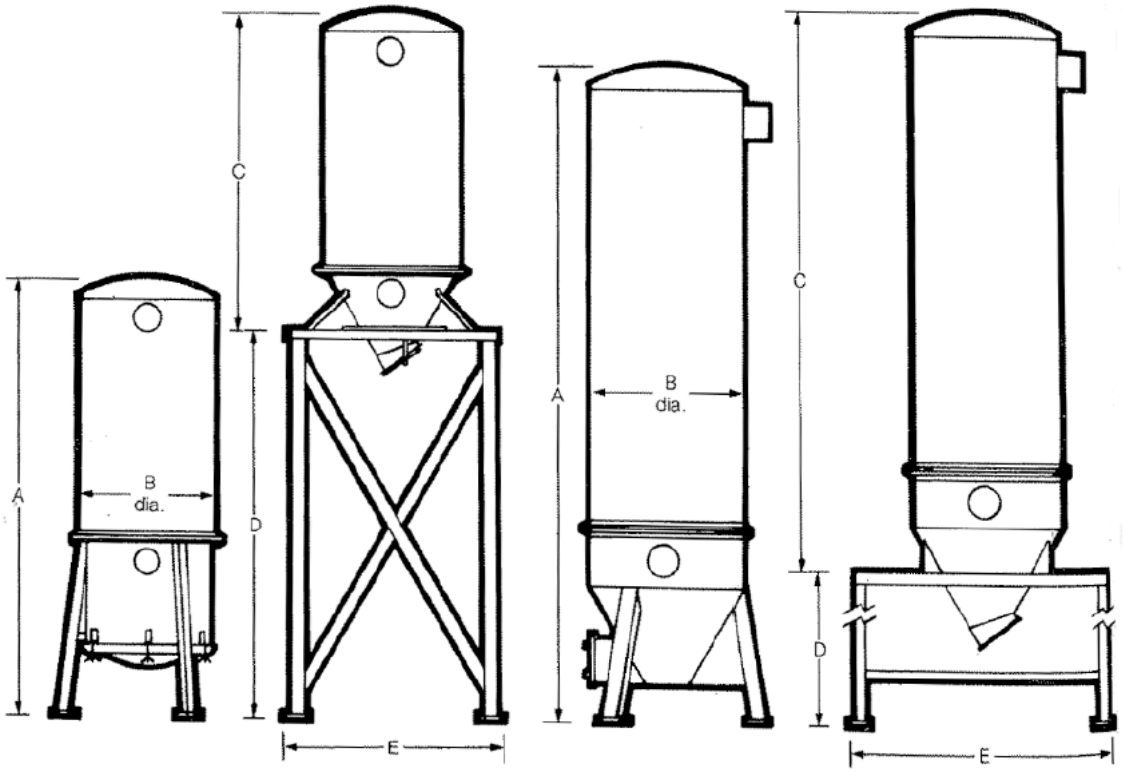
Models: FC15, FC30, FC55

- For use with power units equipped with blowback feature.
- Polyester felt bags are standard.
- Forty-five inch (45”/114 cm) floor stand with 38” (97 cm) clearance for 55-gallon (208-liter) drum.
- Available in floor-mount, floor stand with manual dump, or floor stand with flapper dump configurations.
- Spare filter bag rack with bags available.

Options

- Filter media available.
- Enclosed floor stand.

Figure 45: FC Drawing and Dimensions



Model	A, in. (mm)	B, in. (mm)	C, in. (mm)	D, in. (mm)		E, in. (mm)
FC-15	56 5/16 (1430)	15 1/2 (394)	42 (1067)	45 (1143)	20 (508)	28 (711)
FC-30	80 5/16 (2040)	15 1/2 (394)	66 (1676)	45 (1143	20 (508)	28 (711)
FC-55	83 (2108)	20 (508)	76 (1930)	50 (1270)	26 (660)	35 (889)

Figure 46: Spare Parts List FC Filter Chambers:

Models FC15

Model	Part Number	Description
FC15	W00013550	TNK,FC15,CS,1.5-3.0
FC15	W00015675	FLTR,BAG,POLY,4.25ID, X 25.5LG (QTY 7)
FC15	A0542139	FLTR,BAG,ACYL,4.25ID X 25.5LG (QTY 7)
FC15	W00532536	FLTR,BAG,GRTX,4.25ID X 25.5LG (QTY 7)
FC15	W00015044	FLAP,DISC,4”THRT,AL
FC15	15239	GASKET,RUBBER,FILTER CHAMBER
FC15	W00012559	GSKT,THRT,4”,EPT,BLK,SRC02-16
FC15	W00013983	GSKT,HI-TEMP,3/16”X1”X40”W/1
FC15	W00533541	CLP,VEE-RTNR,VOSS
FC15	W00001465	CLP,HOSE,DIX#064,2.5-4.5” (QTY 7)

Models FC30

Model	Part Number	Description
FC30	W00012290	RACK,BAG,FC-30
FC30	W00532545	TNK,FC30,CS,3.0SCH5
FC30	W00013552	TNK,FC30,CS,1.5-3.0
FC30	A0542140	FLTR,BAG,ACYL,4.25”ID X 50.875 (QTY 7)
FC30	W00015140	FLTR,BAG,POLY,4.25ID X 48.5LG (QTY 7)
FC30	W00015044	FLAP,DISC,4”THRT,AL
FC30	W00012559	GSKT,THRT,4”,EPT,BLK,SRC02-16
FC30	W00013983	GSKT,HI-TEMP,3/16”X1”X40”W/1
FC30	W00533541	CLP,VEE-RTNR,VOSS

Models FC35

Model	Part Number	Description
FC55	W00015883	FLAP,DISC,6”THRT,AL
FC55	W00015140	FLTR,BAG,POLY,4.25”ID X 50.875 (QTY 13)
FC55	A0542140	FLTR,BAG,ACYL,4.25”ID X 50.875 (QTY 13)
FC55	W00533301	FLTR,BAG,GRTX,4.25ID X 48.5LG (QTY 13)
FC55	W00015939	RACK,FC55,BAG
FC55	W00013983	GSKT,HI-TEMP,3/16”X1”X40”W/1
FC55	W00015160	TNK,FC55,CS,STYLE C,4.0SCH10
FC55	W00018920	TNK,FC55,CS,STYLE C,5.0SCH10
FC55	W00016928	GSKT,THRT,6”,EPT,BLK,SRC30-60
FC55	W00001465	CLP,HOSE,DIX#064,2.5-4.5” (QTY 13)
FC55	A0534113	CLP,VEE RETR

ACA Series Filter Chambers

Models: ACA51 Low Boy, ACA53 Low Boy, ACA09, ACA93, ACA131, ACA133, ACA251, ACA253

- Self-cleaning design.
- Available construction in mild steel (**-1** models) or mild steel with epoxy-coated interior (**-3** models).
- Filter chamber section shipped completely assembled separate from the hopper section; mounting on hopper section required.

Figure 47: Spare Parts List ACA Series

Spare Parts List ACA09:

Model	Part Number	Description
ACA09	W00017799	RACK,ACA10,CS,18”BAG
ACA09	W00017892	FLTR,BAG,POLY,4.25ID X 18.5LG, (QTY 6)
ACA09	W00012986	FLTR,BAG,SATN,4.25ID X 18.0LG (QTY 6)
ACA09	732.00392.00	ASSY,VLV,SOL
ACA09	W00533541	CLP,VEE-RTNR,VOSS (QTY 3)
ACA09	W00001465	CLP,HOSE,DIX#064,2.5-4.5” (QTY 6)
ACA09	A0534532	CNTL,ACA10-25,PCB
ACA09	700.00365.00	CABLE,5 METER

Spare Parts List ACA131:

Model	Part Number	Description
ACA131	W00017770	RACK,ACA15,CS,25”BAG
ACA131	W00532536	FLTR,BAG,GRTX,4.25ID X 25.5LG (QTY 6)
ACA131	W00015675	FLTR,BAG,POLY,4.25ID X 25.2LG (QTY 6)
ACA131	A0542139	FLTR,BAG,ACYL,4.25ID X 25.5LG (QTY 6)
ACA131	732.00392.00	ASSY,VLV,SOL
ACA131	W00533541	CLP,VEE-RTNR,VOSS (QTY 3)
ACA131	W00001465	CLP,HOSE,DIX#064,2.5-4.5” (QTY 6)
ACA131	700.00365.00	CABLE,5 METER
ACA131	A0534532	CNTL,ACA10-25,PCB

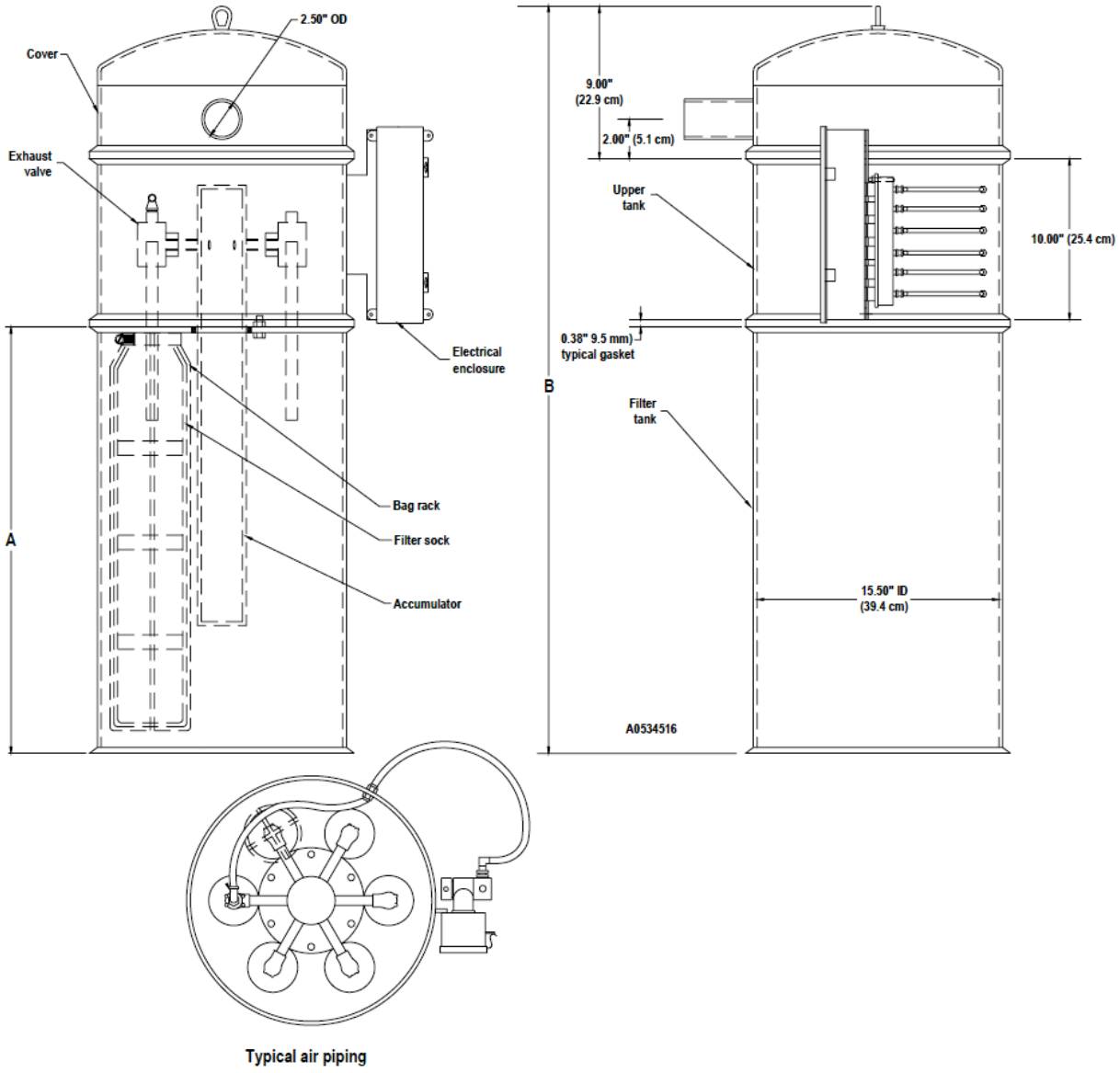
Spare Parts List ACA251:

Model	Part Number	Description
ACA251	732.00392.00	ASSY,VLV,SOL
ACA251	W00017715	RACK,ACA25,CS,48”BAG
ACA251	W00015140	FLTR,BAG,POLY,4.25”ID X 50.875 (QTY 6)
ACA251	A0542140	FLTR,BAG,ACYL,4.25”ID X 50.875 (QTY 6)
ACA251	W00533301	FLTR,BAG,GRTX,4.25ID X 48.5LG (QTY 6)
ACA251	W00533541	CLP,VEE-RTNE,VOSS (QTY 3)
ACA251	W00001465	CLP,HOSE,DIX#064,2.5-4.5” (QTY 6)
ACA251	700.00365.00	CABLE,5 METER
ACA251	A0534532	CNTL,ACA10-25,PCB

Spare Parts List ACA051-053:

Model	Part Number	Description
ACA051-053	W00052714	FLTR,RAK,WELD,LB50,AL
ACA051-053	A0566366	FLTR,BAG,POLY,4.75ID X 8.0LG (QTY 6)
ACA051-053	A0542141	FLTR,BAG,ACYL,4.75ID X 8.0LG (QTY 6)
ACA051-053	W00013983	GSKT,HI-TEMP,3/16”X40”W/1
ACA051-053	A0542153	CNTL,BLOWBACK,115V
ACA051-053	A0541611	FUSE,MDL-3/4 (QTY 1)
ACA051-053	A0542165	CNTL,PCB,BLOWBACK CNTL (Contains below 2 items)
	A0539361	CNTL,SERIES 1,VER-II,AC/DC
	A0542143	EPRM,BLWBK,SERIES1,BLOWBACK CONTROL
ACA051-053	W00533541	CLP,VEE-RTNR,VOSS (QTY 2)
ACA051-053	W00001465	CLP,HOSE,DIX#064,2.5-4.5” (QTY 6)

Figure 48: Typical ACA Series Filter Chamber



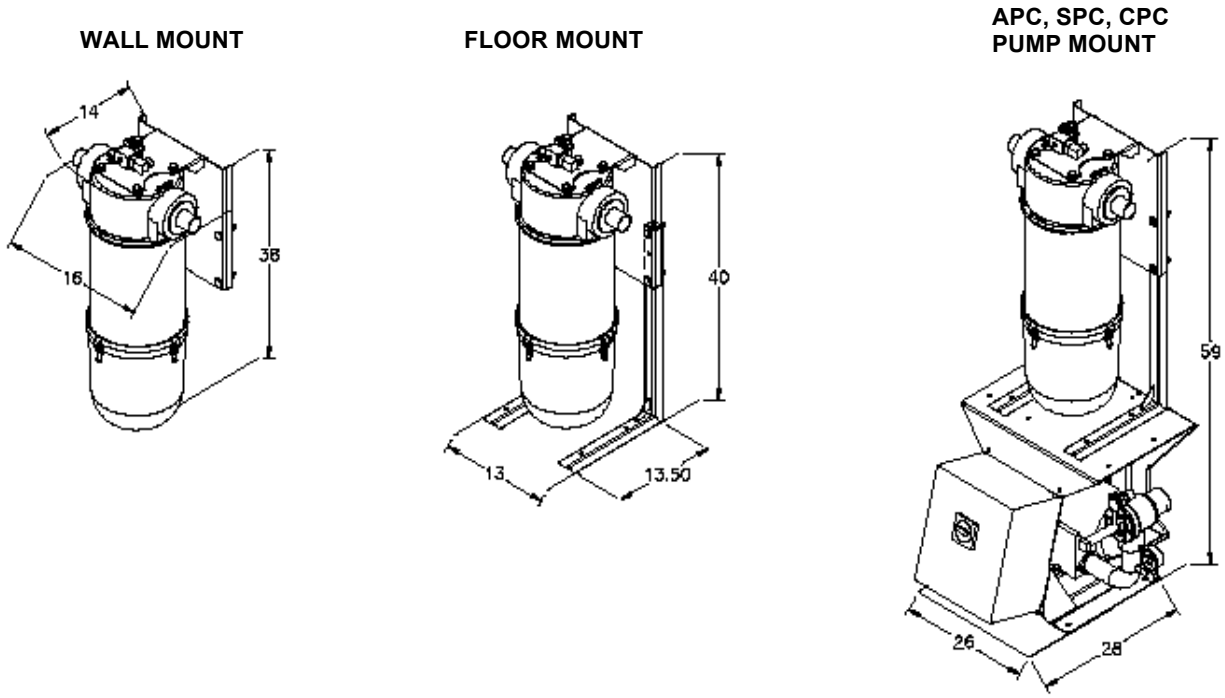
NOTICE ***The 2.5" OD upper air inlet can be sized to vacuum system requirements using available transitions.***

Filter Tank, Overall Dimensions

ACA91, 93				ACA131, 133				ACA251, 253			
A		B		A		B		A		B	
in.	cm	in.	cm	in.	cm	in.	cm	in.	cm	in.	cm
19.5"	49.5	39.0"	99.1	26.5"	67.3	46.0"	116.8	49.5"	125.7	69.0"	175.3

AFC-S, SFC-S, CFC-S Series Filters

Figure 49: Filter Compressed Air Blowback



Model: AFC-S, SFC-S, CFC-S Filter

- Voltage: 24V DC (also available in 115V AC)
- Compressed air supply, 60-80 PSI (4.1-5.5 Bar)
- APC, SPC, CPC pump mount, Wall mount or Floor mount
- See-through Plexiglas collection bin with quick disconnects

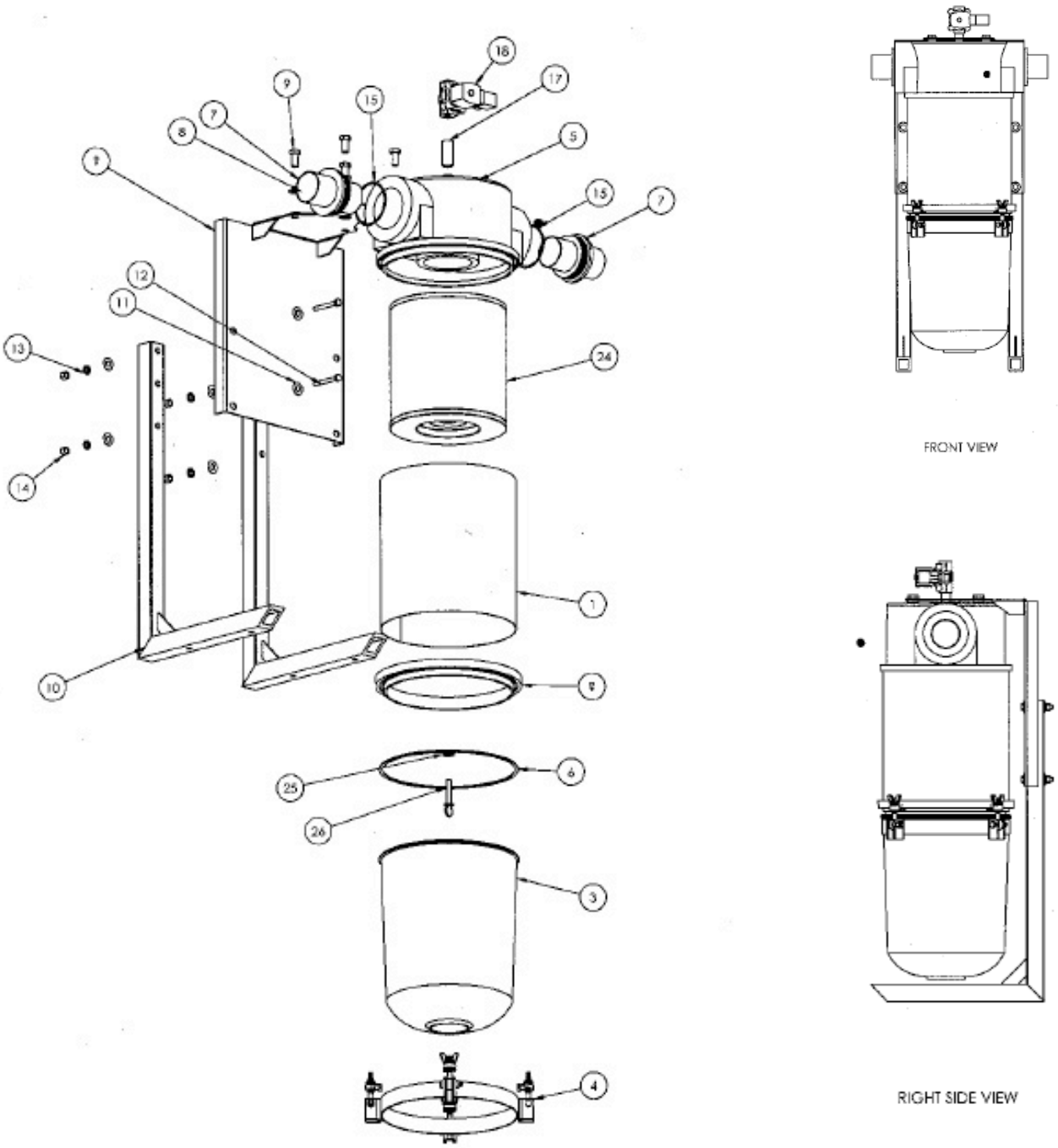
Figure 50: Filter Compressed Air Blowback Specifications and Dimensions:

Filter surface, sq. ft. (m^2)	50 (4.64)
Filter cleaning method	Compressed air or implosion blowback
Approx. weight, lbs. (kg)	70 (26)
Line sizes available	1.5, 2.0, 2.5, 3.0, 3.5 (2 Sch. 5), 4.0

NOTICE

1. ***Implosion style filter cleaning option may be available but requires a special control system. Consult factory.***
2. ***The AFC-SC, SFC-SC, CFC-SC cyclonic pre-filter is also available. Consult factory for more information.***

Figure 51: AFC-S, SFC-S, CFC-S Filter



NOTICE ***Replacement filter element part number: A057125***

Figure 52: AFC-S, SFC-S, CFC-S Filter Spare Parts List

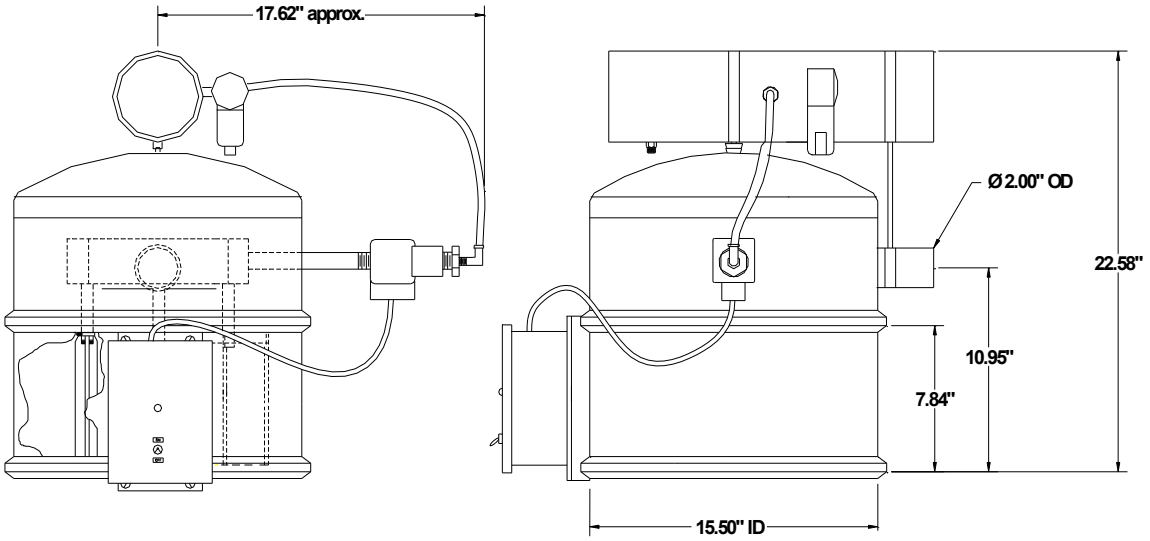
NOTICE **Implosion blowback and compressed air blowback assemblies shown together. Actual configuration depends on blowback method.**

List No.	Qty.	Part Number	Description
1	1	882.00697.00	CYL, EXT, XFC-S, FLTR, 1225X34.01X14GA
2	1	832.00178.00	EX, CYL,XFCS, 11.40ODX10.01DX1.00", MACH
3	1	852.00001.00	BUCKET,POLYCARBONATE,XFC-S
4	1	872.01280.00	SPRT,RING,SUB-ASSY
5	1	832.00176.00	CSTG,FLTR,CMBR
6	1	164.01063.00	GSKT,RBR
7	2	A0556519	IN/OUT,SRC08-16, SSR/CSR23-45
8	4	A0069203	WASH,SPLIT,LOCK,3/8
9	4	A0069236	SCR,HHC,PS,1/2-13X 1.00
10	2	A0570013	STND,FLTR,BASE,WELDMT
11	8	003.00303.00	WASH,WRT,STL,3/8, ZN,USS
12	4	A0069230	SCR,HHC,PLD,3/8-16 X 2-1/2, FT
13	4	A0069203	WSHR,LOCK, PS,3/8, SPLT
14	4	W00001491	NUT,HEX, PS,3/8-16
15	2	A0556546	ORNG,SILC,3.234ID X O.139CS
16	1	SEE CHART 2	IN/OUT,SRC08-16, SSR/CSR23-45, AL
17	1	A0535382	NIP,BR,0.5NPTX 2.00" LG
18	1	SEE CHART 3	VLV,SOL.,1/2", 5/8, GP,300
19	1	A0555194	PATCHCD, DC,RCPT,M,12IN LEAD
20	1	A0563817	CBL,DC MICRO,4CND, 2M, RTANG M12
21	1	A0541039	CORD, GRIP, 1/2" BLACK
22	1	A0571348	CBL,18-3C,300V,SJEOW, BLK
23	1	A0570035	BRKT, FLTR, MTG, SPC, PMP, WELDMNT
24	1	A0571262	FLTR, ELEM,50 SQ.FT. PAPER, XFCS REPLACEMENT
25	1	003.02145.00	WSHR,NPRN,BLK
26	1	001.00008.00	SCR,THMB,3/8-16X2",XFC,FLTR

CHART #2 IN/OUT, SRX08-16, SSR/CSR23-45			
16	2	A0559449	IN/OUT,SRX08-16, SSR/CSR23-45, AL,1.50
		A0556518	IN/OUT,SRX08-16, SSR/CSR23-45, AL,2.00
		A0556519	IN/OUT,SRX08-16, SSR/CSR23-45, AL,2.50
		A0556520	IN/OUT,SRX08-16, SSR/CSR23-45, AL,3.00

CHART #3 IN/OUT, SOLENOID VALVE			
18	1	732.00012.02	VLV,SOL, ½', 5/8, GP, 300 120V
		A0566361	VLV,SOL, 1/2", 5/8, GP, 300, 24VDC

Figure 53: ACA Series Model 51 and 53 Low Boy Filter Assembly



NOTICE ***The air inlet can be sized to vacuum system requirements using available transitions.***

Take-Off Compartments and Pickup Tubes

Take-Off Compartment Models:

- Grinder Takeoff Attachment style,
- Filtered Expandable Vacuum Takeoff (FEVTO) style,
- Expandable Vacuum Takeoff (EVTO) style,
- Cleanout style
- Box style
- Fast Cleanout Vacuum style
- MTO
- MDT
- FCO

Figure 54: Typical Grinder Take-Off Attachment

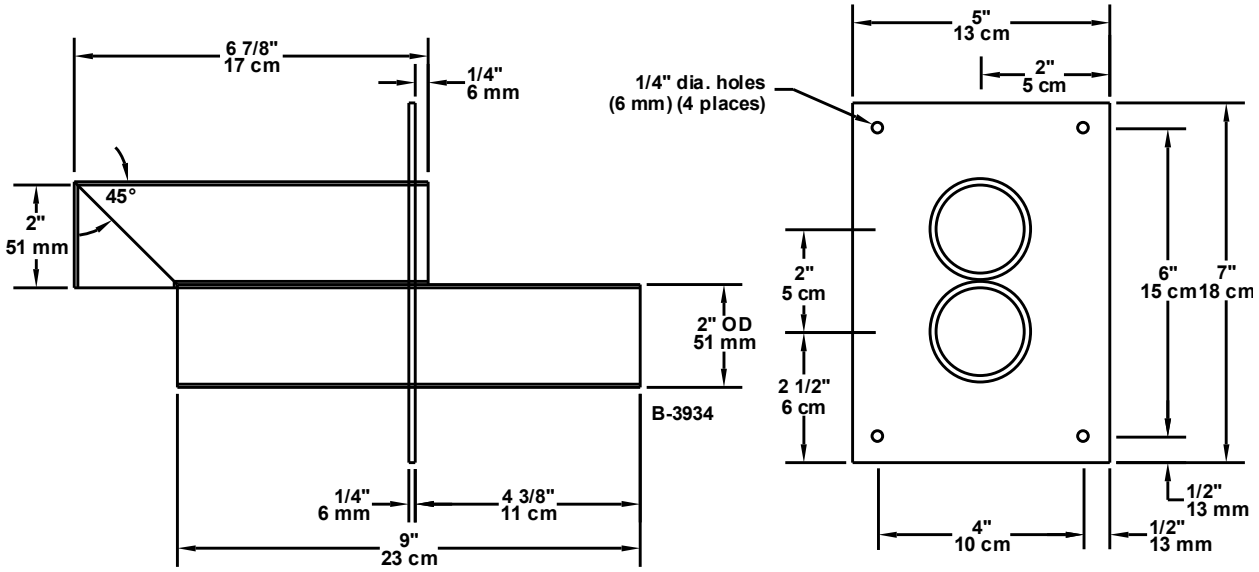
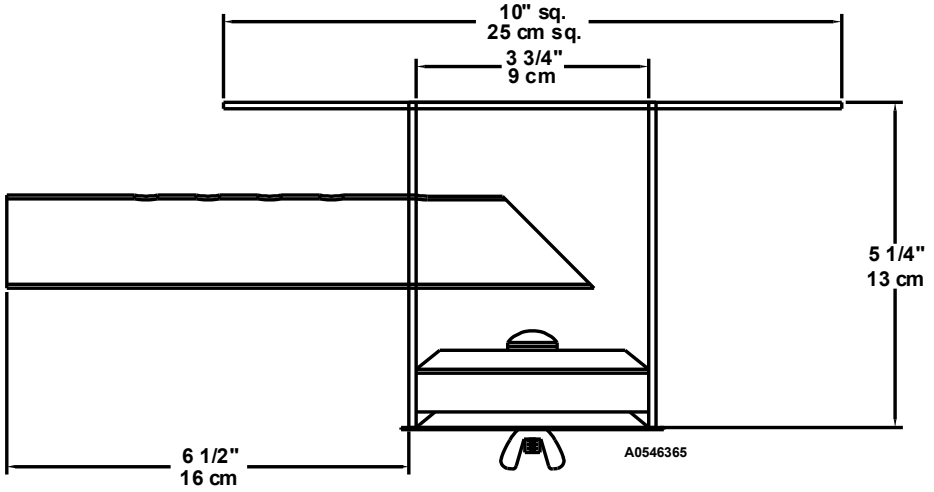


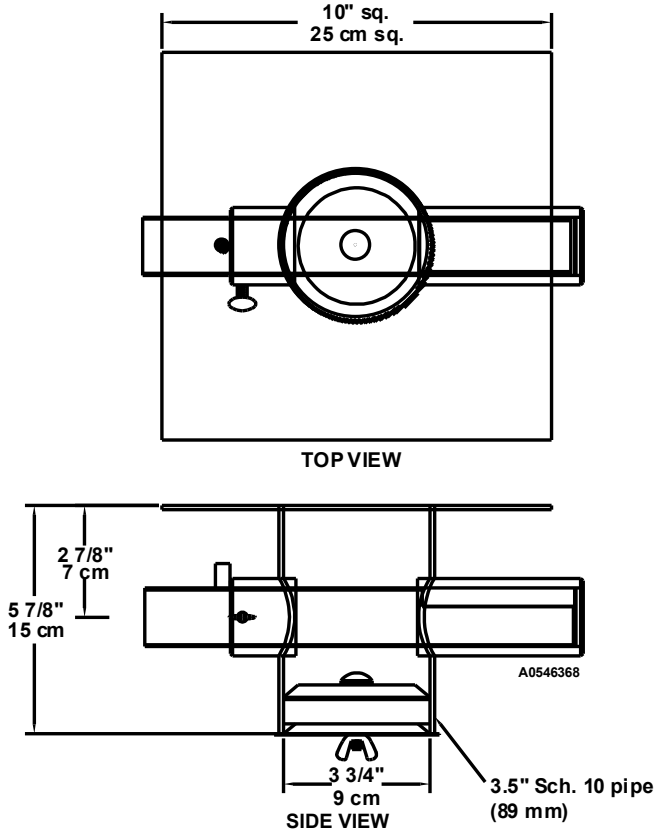
Figure 55: Typical Take-Off Compartment

Figure 56: Typical Fast Take-Off Compartments (not to scale)

FCO-1.5M

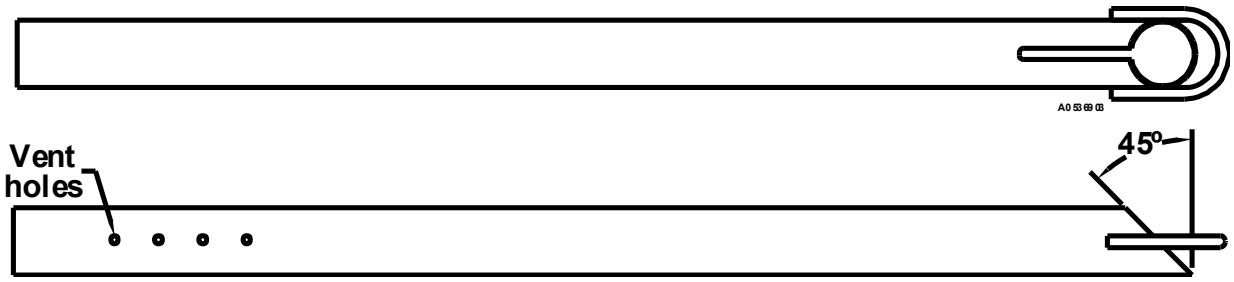


FCO-1.5MD



Pickup Tube Models: Single and dual tube pickup tubes available.

Figure 57: Typical Pickup Probe



2-4 Safety Devices and Interlocks

This section includes information on safety devices and procedures that are inherent to the mechanical components of the conveying system. This manual is not intended to supersede or alter safety standards established by the user of this equipment. Instead, the material contained in this section is recommended to supplement these procedures in order to provide a safer working environment.

At the completion of this section, the operator and maintenance personnel will be able to do the following:

- Identify and locate specific safety devices.
- Understand the proper use of the safety devices provided.
- Describe the function of the safety device.

Safety Circuit Standards

Safety circuits used in industrial systems protect the operator and maintenance personnel from dangerous energy. They also provide a means of locking out or isolating the energy for servicing equipment.

Various agencies have contributed to the establishment of safety standards that apply to the design and manufacture of automated equipment. The Occupational Safety and Health Administration (OSHA) and the Joint Industrial council (JIC) are just a few of the organizations that have joined with the plastics industry to develop safety standards.

Every effort has been made to incorporate these standards into the design of the mechanical components of the conveying system; however, it is the responsibility of the personnel operating and maintaining the equipment to familiarize themselves with the safety procedures and the proper use of any safety devices.

Fail Safe Operation

If a safety device or circuit should fail, the design must be such that the failure causes a “Safe” condition. As an example, a safety switch must be a normally open switch. The switch must be held closed with the device it is to protect. If the switch fails, it will go to the open condition, tripping out the safety circuit.

At no time should the safety device fail and allow the operation to continue. For example, if a safety switch is guarding a motor, and the safety switch fails, the motor should not be able to run.

Safety Device Lock-Outs

Some safety devices disconnect electrical energy from a circuit. The safety devices that are used on the mechanical components of the conveying system are primarily concerned with electrical power disconnection and the disabling of moving parts that may need to be accessed during the normal operation of the machines.

Some of the safety devices utilize a manual activator. This is the method of initiating the safety lock out. This may be in the form of a plug, lever or a handle. Within this lockable handle, there may be a location for a padlock. Personnel servicing the equipment should place a padlock in the lockout handle.

In addition to the safety devices listed above, these mechanical components are equipped with a line cord plug. This allows the operator or maintenance personnel to unplug the system from its power source and tag it out. The plug can then be tagged with any number of approved electrical lockout tags available at most electrical supply stores.

Always disconnect and lockout all electrical power and pneumatic (i.e. compressed air) sources prior to servicing or cleaning the conveying system. Failure to do so may result in serious injury. No one but the person who installed the lockout may remove it.

Chapter 3: Installation

3-1 Uncrating the Equipment

The mechanical components of the conveying system are shipped mounted on a skid, enclosed in a plastic wrapper, and contained in a cardboard box.

3. Pry the crating away from the skid.

NOTICE

Remove the nails holding the box to the skid and lift the box off carefully; avoiding staples in the 1' x 4' wood supports. Cut the steel banding.

4. Use a pry bar to remove the blocks securing the unit to the skid.
5. Lift unit from sides, inserting forklift under the base. The forks must be equidistant from the centerline of the unit and the unit must be balanced on the forks. Lift slowly and only high enough to clear the skid. Use a pry bar if necessary to carefully remove the skid from the unit.
6. Lower slowly.
7. Temporary hardware has been installed to prevent side panels from shifting in transit. Remove hardware.
8. Retain the crating material for reshipping the components in case hidden shipping damage is found.

3-2 Rigging and Placing Mechanical Components

Conveying system installations vary depending on the application: in-plant distribution or rail car unloading, single or multiple material line systems, pellets, or powders. The sections on the following pages are general installation guidelines.

Installing the Pump Package

Place the vacuum pump where you can have easy access to the mechanical components. Choose a clean, dry place where debris won't be drawn into the vent valve on top of the blower. If you install the unit outside, you must provide a weather shed to shelter the unit.

1. Level the vacuum pump package. Use shims as needed.
2. Secure the vacuum pump package with appropriately-sized bolts to the floor or mounting platform.
3. Do not twist or warp the pump package base. This can misalign the blower housing and damage the blower.

Vacuum Pump Vent Piping Considerations

Most vacuum pumps are installed with no exhaust venting of the vacuum pump discharge. If your installation requires vacuum pump exhaust venting, follow these guidelines:

- Venting exhaust air from vacuum pumps requires the installation of metal pipe or ducting. Make sure that no more than two inches water column (2" WC or about 0.5 kPa) backpressure is present at the discharge of the vacuum pump silencer.

NOTICE

Improper sizing or ducting of exhaust air voids your warranty!

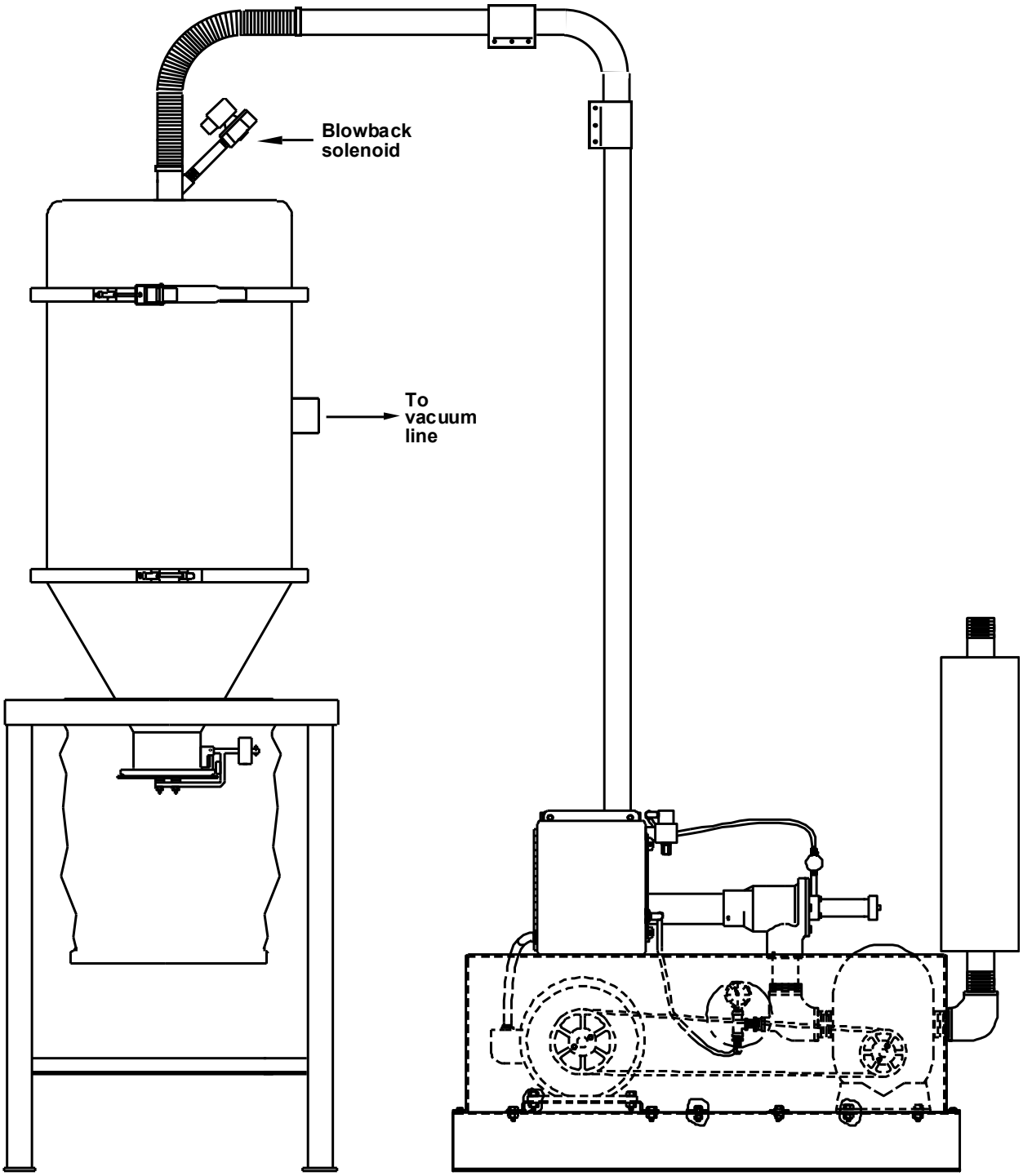
- Use piping or ducting at least two (2) diameter sizes larger than the vacuum connection. Overall vent pipe length—horizontal plus vertical—should not exceed 100 feet (about 30 m) and should not include more than three (3) elbows. If you use pipe for venting, make sure that you use Sch. 5 or Sch. 10 pipe with long radius elbows to provide minimum airflow resistance. If you use ducting, make sure you use high-pressure ducting with mitered bends—with a minimum of three (3) breaks—for minimum airflow resistance. Make sure all piping connections are properly supported.
- If you are venting pump discharge outdoors, make sure you properly terminate vent piping to prevent pump damage. You can either:
    a. Install a rain cap, or
    b. Install the piping so the exhaust faces down and terminates with a screened opening.

NOTICE

If the pump becomes contaminated from rain or airborne particulates, or is damaged by birds, insects, or small animals, your warranty becomes void!

Any variance from these guidelines can cause excessive pump backpressure. Such a condition can drastically affect equipment performance, possibly leading to equipment damage.

Figure 58: Filter Chamber Installation, Optional Blowback Controller Shown



NOTICE ***Make sure you have all tubing supported at ten (10) foot (3 meter) intervals.***

Installing the Control Panel

Select a flat, vertical area for mounting the panel. It should be in an area that gives your operator access to the control. Consider how you are running wiring to the vacuum hoppers, the filter chamber, and pump motor starter(s), vacuum switch(es), and vent valve(s). The panel requires a low voltage grounded power drop as listed on the serial tag.

NOTICE ***Avoid mounting control panel near material lines.***

Installing Material/Vacuum Tubing

Well-designed material/vacuum piping systems provide the best conveying rates. Vacuum/material piping may be a single material line Y system or a multiple material line or a combination of the two systems, depending on the processing floor layout. All systems utilize a common vacuum header line for all stations connected to a pump package; material flow is controlled by sequence T or atmospheric valves operated by the control panel. When installing material/vacuum tubing, take the following into consideration:

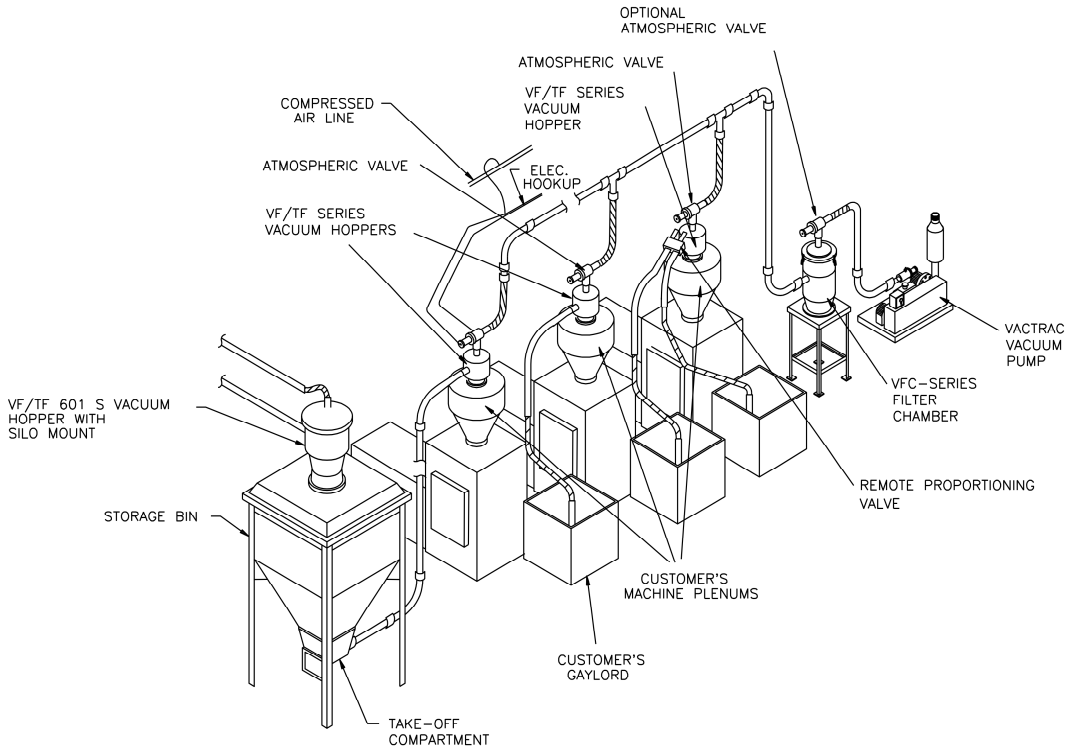
- Vacuum leaks anywhere in the system reduce system capacity.
- Keep the number of material tube bends, elbows, Y-tubes, and vacuum T-tubes to a minimum for maximum system capacity.
- Use long radius tube bends on material lines.
- Keep the total length of material conveying flex hose to a minimum. Long flex hose material runs reduce system capacity.
- Vertical material tubing runs should be straight up. Inclined runs can reduce capacity.
- Support tubing about every ten feet with straps, pipe hangers, or brackets.
- Tube joints must be rigid to prevent vacuum or material leaks.
- Cut tube ends square and chamfer edges smooth. Use a fixed band saw or power miter saw when making cuts. You can use a tubing cutter on aluminum tubing, but you need to use a saw with a carbide or diamond-impregnated saw blade when cutting stainless steel. Chamfer outer and inner edge cuts with a die grinder or a hardened rasp file.
- Clean all tubing after cutting and before assembly. Dampen a rag in a non-volatile cleaning solvent, and run it through all tubing and couplers to remove sediment from shipping or cutting. Run a quantity of low-grade material through new lines to remove any remaining sediment, then discard the material immediately.
- Tube ends must butt together inside couplers.
- Tighten tube coupler nuts from the center outward to ensure a tight seal and allow proper contact of the internal grounding strip.
- Each material tubing run must maintain an electrical continuity through the tubing and couplers, from pickup point to vacuum hopper. Grounded flexible hose is recommended.
- If you must cut bends, cut the straight section, leaving enough straight length for complete insertion into a coupler.

- You can attach a quick-change or standard tube coupler to vinyl flex hose by inserting a stub of hard tube into the hose and securing it with a hose clamp. Be sure enough tube extends from the hose to properly install the quick-change or coupler. Make sure that you put clear silicone caulk around adjoining tube seams for exterior bolted couplers.
- If you use stainless flexible material hose, the material flow must be in the direction as indicated by the arrows on the hose. Material direction is not critical with vinyl flex hose.
- Bring all truck fill lines to a central location, such as a silo, unless otherwise specified.
- All rail car manifold Y-tubes must be installed with a ten-degree (10º) downward slant from horizontal on the leg section. Make sure that space between rail car manifold Y-tubes are fifteen feet (15'/4.5 meters) on center to allow proper alignment between rail car discharge ports and the manifold Y-tubes.
- A plug must be put in the last sequence T valve on the vacuum header to prevent vacuum loss. If atmospheric valves are used, you must terminate the vacuum line at the last atmospheric valve.

Multiple Line System Piping Considerations

- Multiple line systems have separate material lines for each material to allow different types of materials to be conveyed.
- Multiple line systems have separate pickup devices for each vacuum hopper.
- Materials are often loaded from beside the processing machine from gaylords, grinder takeoffs, and storage bin takeoffs.

Figure 59: Typical Multiple Line System Installation



Single Line Y-Tube System Considerations

- Single line Y piping systems use a common material line for all vacuum receivers connected to a pump and are typically used to convey material from a central supply to several stations.
- If you are installing a single line Y system, use Y tubes on the material lines. A Y tube is installed with the branch arm leading to the next station on top and the straight portion that supplies material to the station underneath.
- Connect a short-radius bend to the straight portion as close to the Y as possible.
- You must connect a minimum 2-foot (61 cm) straight length of tube to this short radius bend on the horizontal before the material tubing drops to the receiving point. If possible, incline this tube approximately ⅛" per foot (1 cm per meter).
- On single line Y systems, you must install check valves on material inlet tubes inside vacuum receivers.

NOTICE

Do not use SRH01, SSR03, CSR03 or SRC02, SSR06, CSR06 vacuum receivers on single line Y systems.

- You can install a long- or short-radius bend on the last station, where a Y-tube is not needed.

Figure 60: Recommended Single-Line Y-Tube Installation

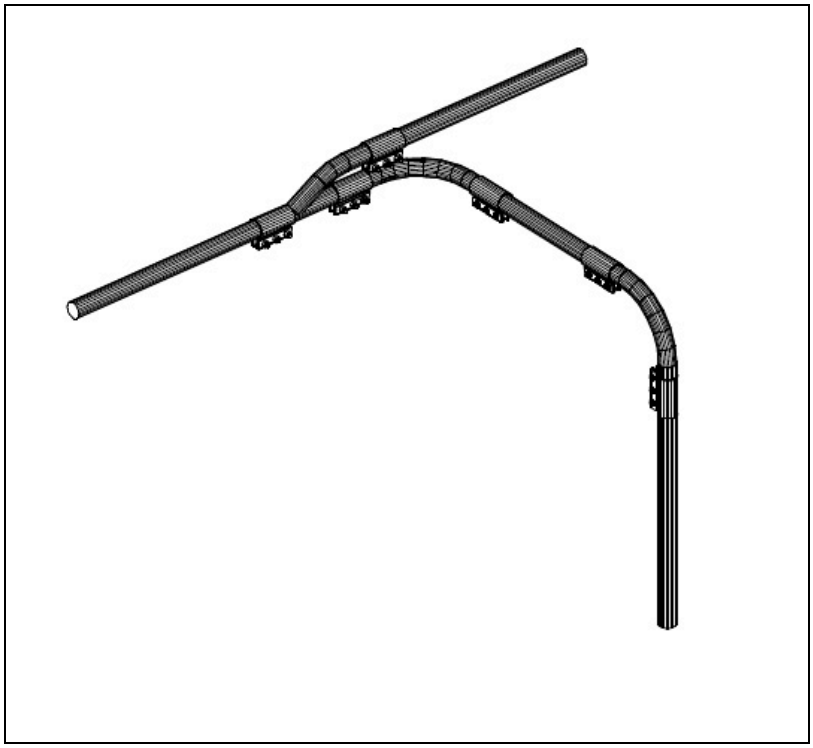


Figure 61: Modified Single-Line Y-Tube Installation

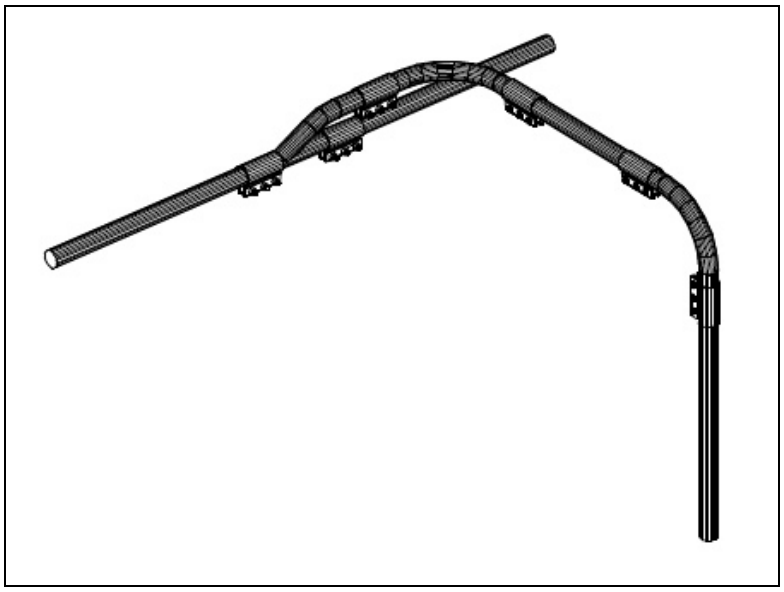


Figure 62: Manifold Y-Tube Installation

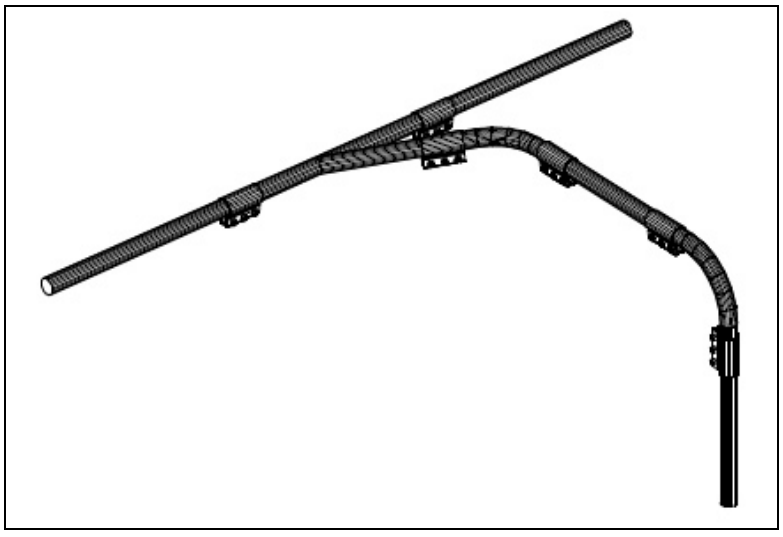
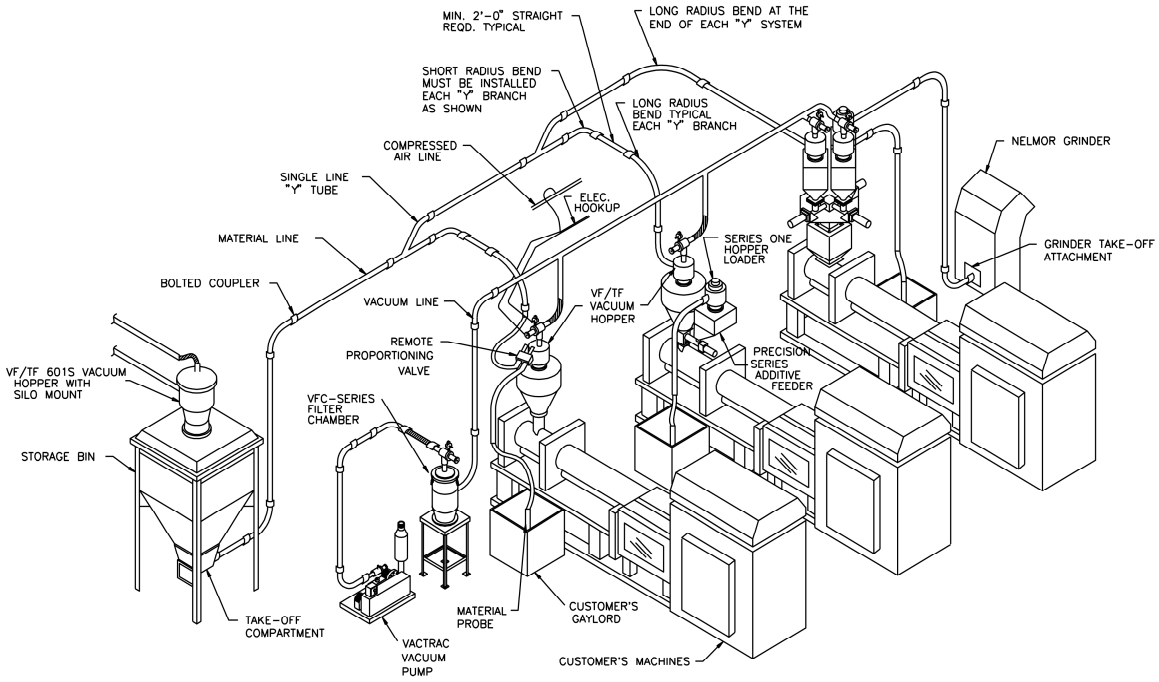


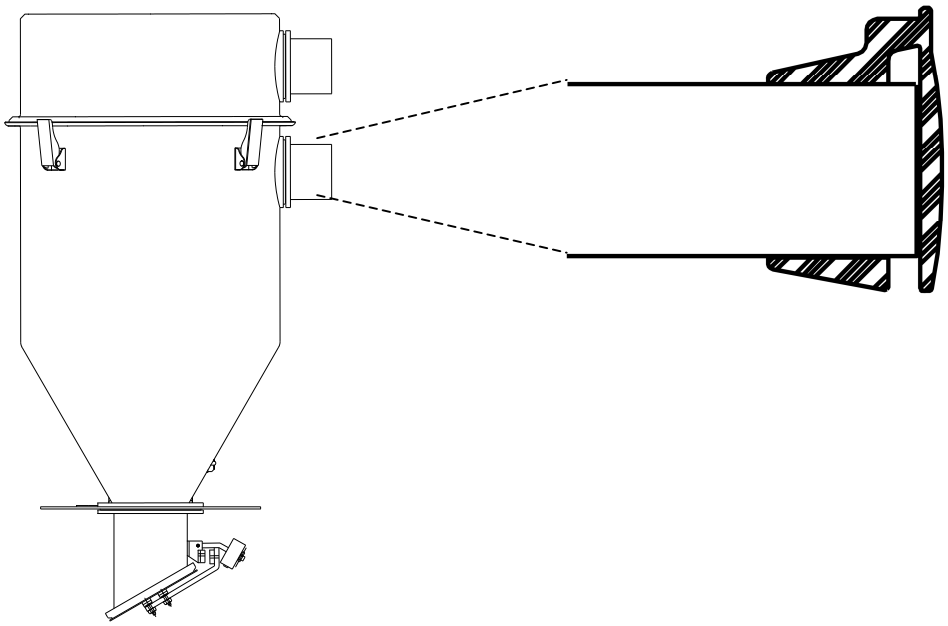
Figure 63: Typical Single Line Y-Tube System Installation



Material Check Valves in Single Line Y-Tube Systems

- Check valves are a critical feature on single line Y systems. You must have a check valve installed on the material inlet inside the receiver on all vacuum hoppers in single line Y installations.
- Check valves must open when the receiver is being loaded and seal to prevent a vacuum leak when other hoppers are being loaded.
- Vacuum receivers for these systems have a special factory-installed extended material inlet tube to hold the check valve.
- The check valve must not be pressed too far onto the inlet stub to prevent proper sealing.
- The hinge of the check valve should be up to prevent material from being deflected up into the vacuum hopper filter.
- Do not allow vacuum receivers with check valves to be over-filled to a point above the bottom of the check valve. Over-filling prevents the check valve from sealing and creates a vacuum loss. Adjust the conveying time on Time-Fill systems to prevent this from happening.
- Inspect periodically for erosion or wear. Replace as required.

Figure 64: Typical Material Check Valve



Installing VFC, SFC, CFC or FC Filter Chambers

The filter chamber protects the vacuum pump from damage caused by material carry-over. Primary system filtration occurs in the filter chamber, not in the vacuum receivers. This reduces maintenance of vacuum receiver filters atop processing machines.

A vortex created in the filter chamber separates carry-over from the air stream and a cartridge-type filter catches any dust and fines drawn into the upper chamber.

At the end of the conveying cycle to all on-line vacuum receivers, the dump delay cycle occurs. Atmospheric air from the vacuum line is introduced to the filter chamber, equalizing the pressure inside the filter chamber. The material discharge flapper valve falls open and dumps the fines and dust collected during the conveying cycle.

A compressed air filter cleaning blow back option is available for systems conveying very dusty materials. Consult the Sales Department for more information. To install the unit, perform the steps listed below:

1. Level and secure the filter chamber near the pump package. Use 3/8” (9 mm) bolts to anchor the filter chamber.
2. Connect the piping between the vacuum inlet valve on the pump package and the tube stub on the filter chamber lid. For easy filter maintenance, install at least three feet (3’ / 1 m) of vinyl flex hose at the end of the run to the filter chamber. The rest may be hard piping as long as it is properly supported.
3. Run vacuum tubing from the tangential inlet tube to the vacuum header line servicing the vacuum hoppers. Turn the inlet tube toward the header. Support the tubing properly and make it vacuum-tight.

NOTICE ***Use of a system without an approved filter system installed on the vacuum air inlet voids the blower warranty!***

Installing the Filter Chamber Shroud

The cloth filter shroud is mounted to a ring on the underside of the filter chamber stand. It reduces housekeeping duties around the filter chamber by preventing dust from becoming airborne when the dust and fines are discharged from the VFC filter chamber. The dust container below the shroud is customer-supplied—the standard 24" (61 cm) clearance stand is designed for use with a 5-gallon (19-liter) pail, and the optional 38" (96 cm) clearance stand is designed for use with a 55-gallon (208-liter) drum.

1. Insert the filter shroud support wire into the slotted hole in the middle of the cloth filter shroud. Use supplied hardware to secure.
2. Slip the filter shroud over the retaining ring located on the bottom side of the filter stand mounting plate. Secure it with the worm clamp provided.
3. Place the dust container you've supplied below the filter chamber stand and insert the filter shroud.
4. On standard 5-gallon (19-liter) pails, the filter shroud should be trimmed and fastened to the top lip of the can with a band clamp. Don't trim the filter shroud on 55-gallon (208-liter) drums. Secure the drawstring on the shroud around the drum, making sure the open end of the shroud hangs freely inside the drum.
5. Make sure the operation of the counterweighted flapper dump valve is not obstructed in any way by the filter shroud. See Figure 26 on page 55 for a typical example of a filter chamber shroud.

⚠CAUTION ***Do not obstruct the filter shroud in any way. Empty the dust container* before *the dust level obstructs the end of the filter shroud. Failure to observe these directives may result in reduced filtering efficiency and contaminants entering the conveying system.***

Installing ACA Series Filter Chambers

Powders or granular materials with fines can cling to filters and contaminate operating components. The ACA Series filter chamber is a self-cleaning filtration unit that enables such materials to be conveyed.

During material conveying, fines accumulate on the outside of the filter media as the air passes through a filter bag. These fines must be periodically removed to prevent performance losses in the conveying system. The ACA Series filter utilizes a plant-based compressed air supply to clean filter bags with intermittent air pulses.

At preset time intervals, a solenoid valve activates, interrupting continuous compressed air flow to the unit. This interruption causes an exhaust valve to open, allowing stored compressed air from an accumulator to be released down inside the filter bag. This momentary burst of air stops the flow of dust-laden air through the filter bag and flexes the filter fabric. This, along with the reverse flow of air, causes the accumulated dust to fall off the bag and back into the hopper for discharge.

This instantaneous cleaning action of air pulses are directed to each individual filter bag in sequence and at a specified duration. You can adjust the time between air pulses; different conveying rates and materials require different air pulse times. Air pulses must occur more

frequently with increased dusting conditions. Since filter cleaning action is directed to an individual filter bag, remaining filter bags are on-stream, continually filtering conveying air.

ACA Series filter chambers are shipped completely assembled to reduce customer installation time. Several mounting arrangements are available, depending on the mounting adapter supplied with the unit.

ACA filter chambers are used with several different sizes of vacuum hoppers, depending on the mounting adapter supplied with the unit. Typical hopper sizes range from 0.8 cu. ft. to 6.0 cu. ft. (22.7 liters to 169.9 liters); smaller hopper installations are also possible. You must install a bottom flange adapter when mounting the filter chamber to the vacuum hopper. The adapter increases overall height of the filter chamber unit; this may affect where you install the unit.

Installing Vacuum Receivers and Inventory/Vacuum Receivers

Vacuum uses one of three mounting systems: flange, suspension, or silo mounting. Vacuum receivers and inventory vacuum receivers use flange mountings only.

- Remove all rubber banding and any other packaging materials from around the flapper dump valve *before* installation for proper operation.

Complete the vacuum and material tubing to the vacuum receivers. Final connections are usually made with flexible hose.

NOTICE ***On single line Y systems, you must install a check valve on the material inlet of each hopper.***

Installing the Safety Filter

Use the following procedure to install the safety filter:

1. Place the safety filter in the conveying system directly before the vacuum pump.
2. Using 7/16”, Grade 5 or better hardware, secure the filter in place:

Wall Mount. Use the mounting flange to secure the filter to the wall.

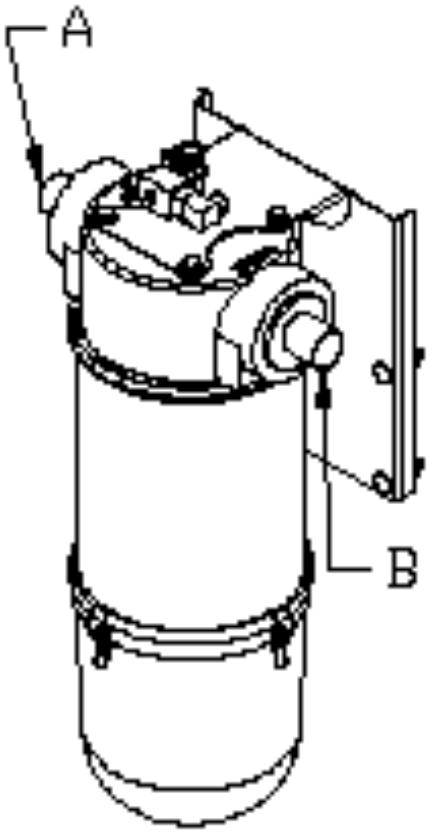
Floor Mount. Bolt the floor stand to the ground.

Pump Mount. Bolt the pump and stand to the ground. Pump-mount is only available with XPC pumps.

⚠WARNING ***Make sure all screws are strong enough to hold the weight of the filter.***

- Connect the vacuum line to the filter chamber’s inlet tube (A). Use a hose clamp to secure the flexible hose.
- Connect the vacuum pump line to the outlet tube (B). Use a hose clamp to secure the flexible hose.

Figure 65: AFC-S, CFC-S, SFC-S Filter Installation

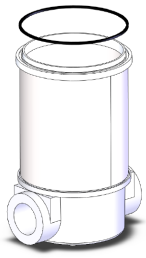


Retrofit Kit for XFC Filter Chambers

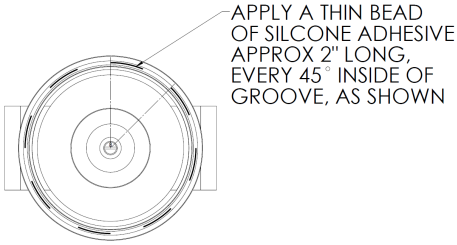
Kit P/N 228.00250.00

Instructions for installation of new filter chamber sealing gasket

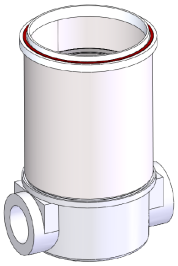
Disconnect filter chamber from production system, orient as shown and remove bucket.



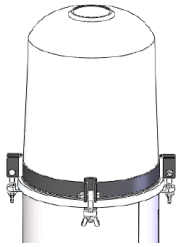
Remove existing gasket from ring's groove. Clean groove to remove dust and dirt. Groove needs to be clean for next step.



Apply a thin two inch long bead of silicone sealant in the groove every 45°. A 734 RTV or equivalent sealant is recommended due to ease of use. (Adhesive is not included with this kit)



Place the new red gasket into the groove. Allow gasket to seat. Use fingers and thumbs to ensure proper and uniform seating of gasket in groove.



Replace bucket on to filter chamber.

Filter Chamber is ready to be reinstalled and put back into service.

3-3 Compressed Air Blowback Connection

To provide proper filter element cleaning, the compressed air supply must be regulated to 80 PSI (5.5 bars). Low air pressure will cause poor filter element cleaning. Air consumption depends on the frequency and length of cleaning air pulses into the filter element.

Connect a minimum of 3/8” (9 mm) air line to the top of the solenoid valve air block. Compressed air must be clean, dry, and free of oil. A filter regulator and shut-off are recommended components of your in-plant air supply. In-line filters can handle small amounts of moisture; in-line desiccant filters or packed beds of granular absorbing polymer can remove oil mist and condensed oil.

You may need to install an accumulator in your air supply system to enhance blowback effectiveness if your system cannot consistently meet these requirements. Make sure you use full-sized 3/8” or larger diameter pipe or tubing when making the connection.

3-4 Implosion Blowback Connection

The clearing valve (implosion blowback valve) is located on the outlet of the vacuum filter. Connect the clearing valve to a 60-80 PSI (4.1-5.5 Bar) compressed air supply. Compressed air must be clean, dry and free of oil.

Run a 3/8” (9 mm) branch line to supply the vacuum hoppers in your system. Install a 3/8” (9 mm) x 1/8” (3 mm) tee valve in the up position near the filter chamber.

Connect shop compressed air to port number 3 on the clearing valve solenoid with 1/4” (approx. 6 mm) poly tubing. Connect port number 2 to the clearing valve. Port 1 is to be exhausted to the atmosphere. (See

Figure 66 on next page).

The 3/8” (9 mm) branch supply line should include a shut-off valve for on/off control, an air filter/pressure regulator with a gauge for pressure control, and mini-lubricators located at each vacuum receiver. Install a quick-disconnect fitting or a shut-off valve in the compressed air

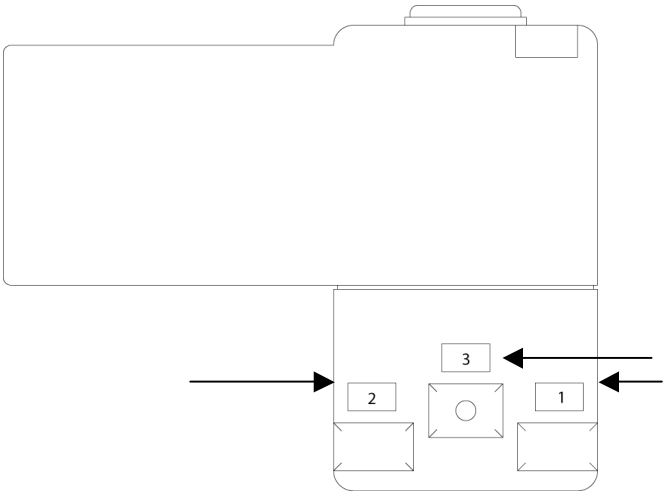
piping leading to the vacuum receiver's clearing valve to speed receiver cover removal for cleanout or service.

Port 3: Shop Air In

Port 2: (common)
Attach to Clearing
Valve

Port 1: Exhaust

Figure 66: Clearing Valve Compressed Air Connections



Flange Mount Vacuum Receiver Mounting

These units are designed to fit in existing equipment with standard 10” mounting holes that will accept our vacuum receivers.

- ☑ For new installations, the recommended cut-out is a 10” (25.4 mm) –diameter round hole with six (6) mounting holes equally spaced on an 11.0” (279.4 mm) OD bolt circle. The factory provides 5/16” holes on the mounting flange to allow proper bolt clearance.

Orienting the Unit

The factory provides (12) mounting holes locations on the 11.0” (279.4 mm) OD mounting bolt circle. Under most conditions, using six (6) of the mounting holes with the proper hardware is sufficient to secure the unit to other equipment.

- ☑ Make sure that mounting hardware is equally spaced along the bolt circle.

The twelve holes on the mounting bolt circle let you rotate the unit in 30 degree increments to match the orientation of piping and wiring of the equipment.

NOTICE

If you need a finer orientation or if you need to adjust the mounting position, locate the six holes on the inside of the mounting flange ring.

To allow for better orientation of equipment installations, the junction box bracket (located on the mounting flange) has been designed to mount during installation by utilizing two of the mounting locations along the bolt circle.

To mount the junction box assembly:

1. Mount the vacuum receiver using four (4) of the six (6) bolts.
2. Cut the temporary straps securing the junction box assembly to the mounting flange.
3. Orient the junction box assembly along the mounting bolt circle location. Stop when the location most closely matches the preferred installation orientation. The mounting holes for the junction box bracket must line up with two of the holes on the mounting bolt circle flange. Be careful of wiring on or around the unit.
4. Secure the junction box assembly with hardware through the remaining two (2) mounting flange holes. Properly tighten to secure the assembly to the flange.

Positioning and Spacing on the Demand Switch

The factory has pre-set the demand switch position for proper operation and, under most operating conditions, does not require adjustment.

The demand switch has two wires to provide for a normally open signal to the central controller (close to the load):

- A common (black) contact, and
- A closed (white) contact

The demand switch sends a signal to the central controller when the material discharge flapper is closed and the unit calls for material.

Most controllers utilize a closed contact to signal the conveying system controller that a material demand condition exists (using the black and white wires).

NOTICE

The Demand/Level sensor is not designed to be connected to a load. Do not connect external devices to the sensor wires. This switch is designed for signal load only. Connecting the sensor to a load VOIDS YOUR WARRANTY!

If the switch is not providing a signal to the controller, check the following:

1. Check that the proper wire connections are made.
    - Secure the connections.
2. Make sure that the switch is not connected to any external load device.
    - Disconnect the load device, connect wiring to the system controller only.
3. Consult with ACS Service Engineers for proper switch/magnet spacing.

Once the vacuum receiver and Demand Switch is properly oriented, complete the installation by performing the following:

1. Run a bead of silicone sealant around the mounting flange before seating the vacuum receiver. This makes a better seal.
2. Use nuts and screws to mount the hopper. Nuts and bolts can loosen, fall off, and damage process equipment.
3. Check across the mounting flange with a bubble level. A level installation is important for proper operation.
4. Properly ground all vacuum receivers.

Adjusting the Vacuum Receiver Counterbalance

TF and VF Models Only

The counterbalance is factory-adjusted, but may have moved during shipment. To adjust the vacuum receiver counterbalance:

1. Loosen the set screw on the counterbalance. Move the counterbalance so the flapper opens from 3⁄16” (4 mm) to 1⁄4” (6 mm) on the end opposite the pivot. Re-tighten the set screw.
2. Apply removable thread locking compound to the set screw and re-tighten.

Installing the Pickup Probe

Pickup probes (See Figure 25 on page 51 for an example) are used to empty gaylords or bulk material containers located beside the processing machine. A conveying system can use horizontal take-offs or vertical pickup probes (or a combination of the two) to supply material to the vacuum receivers. To ensure maximum conveying rates by your system, take the following into consideration:

- Locate the supply container near the vacuum receiver.
- Connect the pickup probe to a vacuum hopper material inlet tube with a minimum amount of tubing, bends, and flex hose.
- Secure the flex hose at the probe and the material inlet with hose clamps. Be sure to avoid loops and kinks, and install grounding wire around the outside of flex hose to prevent static built-up. Make sure you ground both ends of the grounding wire.

- Put the pickup probe in the material supply. The burrowing action of the probe provides a steady flow of material.
- To vary the convey rate, cover or open the vent holes on the pickup probe as needed with the inlet tube.
- If your material bridges frequently and triggers No-Convey alarm conditions, you should consider using a gaylord tilter or tilter/jogger to supply a steady stream of material to your conveying system.
- Container tilters are recommended for complete cleanout of gaylords.

Installing the Grinder Take-off Attachment

A grinder take-off attachment (See Figure 22 on page 49 for an example) is typically mounted horizontally through the side of a grinder or granulator bin or any other straight sided supply bin.

1. The take-off attachment is mounted through a hole cut close to the bottom of the bin to allow emptying as much material as possible.
2. Cut a hole smaller than the mounting plate.
3. Mount the take-off attachment with the mitered air inlet tube on top, and the straight material outlet on the bottom.
4. Mark and drill holes to match the mounting plate holes. Fasten tightly with sheet metal screws, bolts, or rivets.
5. Secure the mounting hardware with a removable thread locking adhesive, cotter pins, aircraft fasteners, etc. to prevent the hardware from vibrating loose and being conveyed into the processing machine.
6. You should attach grounded flex hose to the material outlet and the vacuum receiver with hose clamps. The other tube is the air inlet to supply make-up air to the bin. Avoid loops or kinks in the flex hose.

Installing and Adjusting the Take-off Compartment

Take-off compartments (TOCs) are installed under surge bins, silos, or other storage devices. TOCs are available in a single position complete cleanout style with a V-shaped bottom or a box type with one or more material takeoff positions (See Figure 23 on page 49 for an example.).

You can have several different size tubes for several different sized pump packages conveying a material from a central supply to several destinations.

Take-off compartments are typically pre-drilled for mounting and their outlets are sized to fit the pump package, material, and distance specified at the time of purchase. To optimize the use of your take-off compartment, provide for the following:

- Make sure that a three-foot (1 m) horizontal run is present prior to installing elbows.
- Install the TOC so the outlet tubes can head out unobstructed in the direction of the material destination.
- Use long radius bends on TOC outlets.
- Provide access for removing and cleaning TOC inlet air filters.
- Provide access for cleanout doors on TOCs.

Most TOCs have adjustable material inlet tubes to fine-tune the material to air ratio for optimal conveying rates. To adjust:

1. Loosen the set screw on the adjusting dial and turn the tube clockwise one third of the way from the 0 (zero) mark.
2. Turn ON the conveying system and start loading from the takeoff.
3. Rotate the dial until the material flows at a steady rate, then throttle it back a bit when surging or flooding occurs. System vacuum should be between 8" Hg (271 millibars) to 12" Hg (339 millibars) for best rates.
4. Lock the dial in place with the set screw when you have determined the best setting for a particular material. Make note of the setting and vacuum level for future reference.

Adjusting Fast Take-off (FCO) Compartments

When adjusting fast clean-out take-off compartments, make adjustments in small increments (especially in systems with long runs) to allow air flow to equalize throughout the system.

FCO-1.5M

In some applications, material flow characteristics may require a more defined air-to-material ratio. You can do this easily by covering one or more of the aeration holes located at the top of the inlet tube in FCO-1.5M fast clean-out take-off compartment models.

FCO-1.5MD

The FCO-1.5MD model fast take-off compartment has adjustable inner tubes fitted to the fixed outer tube. These adjustable inner tubes are locked down by a hold-down screw on the outer tube. Loosen this screw to adjust the inner tube.

When the adjustable inner tube is completely inside the material compartment and the indicator knob is in a vertical position, no material can be conveyed in the system. Adjust the tube by pulling it away and keeping the indicator knob vertical.

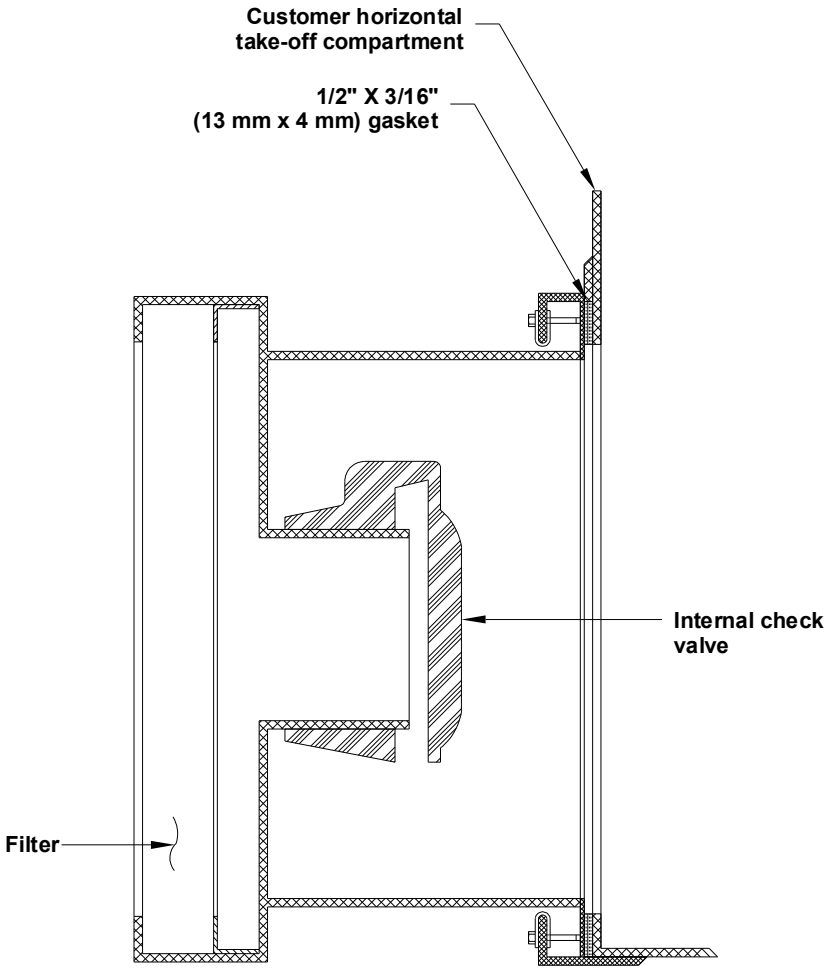
The maximum amount of material can convey when the reference hole on the adjustable inner tube is outside the edge of the outer tube. Vary the amount of material conveyed by rotating the inner adjustable tube.

To clean out material in the FCO-1.5MD model fast take-off compartment, unscrew the plug at the bottom.

Installing the Powder Check Adapter (Box Style; EVTO; FEVTO only)

The powder check adapter is usually factory-installed. When installing the powder check adapter, make sure you install it on the tube stub as shown below. Remove the filter on the take-off compartment and install the adapter using the four screws provided, then replace the filter. No other adjustments are required.

Figure 67: Typical Powder Check Adapter



3-5 Compressed Air Connections

Making ACA Series Filter Chamber Compressed Air Connections

To provide proper filter bag cleaning, make sure that you regulate the compressed air supply to 80 psig (551.6 kPa/ 5.52 bars). Air consumption depends on frequency and length of cleaning air pulses into the filter bags. Higher pressures can shorten the life of filter bags; lower pressures cause poor filter bag cleaning.

Connect a ¼" (approx. 6.3 mm) air line to the bottom of the solenoid valve air block. Make sure that the compressed air you use is clean, dry, and free of oil. In-line filters can handle small amounts of moisture; in-line desiccant filters or packed beds of granular absorbing polymer can remove oil mist and condensed oil.

Making Pump Compressed Air Connections

Connect the vacuum pump to a minimum of 60 psi to 80 psi (414 kPa to 552 kPa) source of clean, dry, lightly lubricated compressed air. Make the ⅛" NPT (3 mm) connection at the solenoid valve on the pump package.

Your compressed air supply piping should include:

1. A shutoff valve for ON/OFF control.
2. A pressure regulator with gauge.
3. An air filter/lubricator.

Connecting Vacuum Receivers with Atmospheric Valve Compressed Air Lines

See Figure 36 on the following page for an illustration of a typical atmospheric valve. Most conveying systems use atmospheric valves to direct system vacuum into the vacuum hoppers. You should be able to locate the atmospheric valve in one of three places:

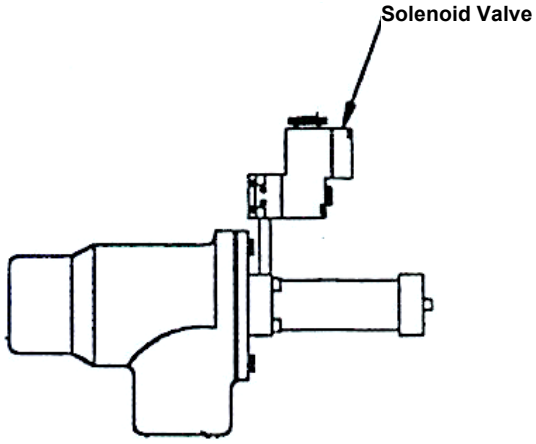
- Installed on top of TF or VF Series vacuum receivers
- Installed in the vacuum header on SR Series vacuum receivers

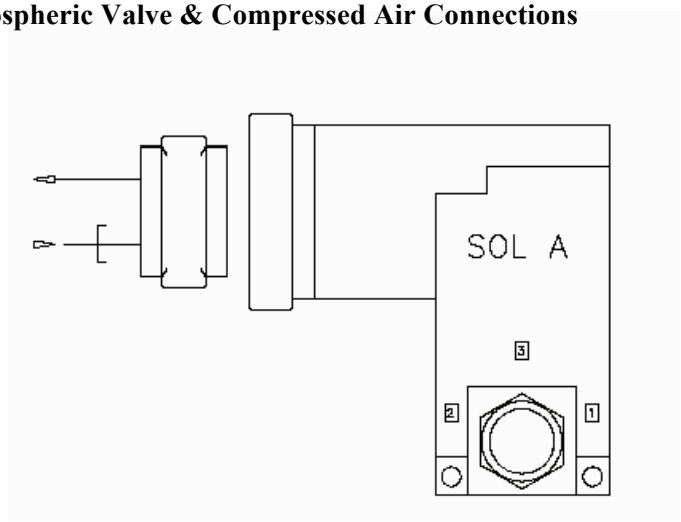
Connect the atmospheric valve to 60 psi to 80 psi (414 kPa to 552 kPa) source of clean, dry, lightly lubricated compressed air.

Run a ⅜" (9 mm) branch line off the plant air main to supply the vacuum hoppers in your system. Install a ⅜" (9 mm) x ⅛" (3 mm) tee in the UP position near each hopper.

Connect compressed air to the normally closed port on the atmospheric valve solenoid valve with a ⅛" (approx. 3 mm) pipe nipple. Connect the common port to the atmospheric valve using ¼" (6 mm) poly tube and connectors.

Figure 68: Solenoid Valve Location on Atmospheric Valve & Compressed Air Connections





(1) Normally Closed Port = Connect to Air Supply
(2) Common = Connect to Valve
(3) Normally Open = Exhaust Port

Your ⅜" (9 mm) branch supply line should include:

1. A shutoff valve for ON/OFF control.
2. An air filter/pressure regulator with a gauge for pressure control.
3. Mini-lubricators located at each vacuum receiver.

Install a quick-disconnect fitting or a shutoff valve in the compressed air piping leading to the vacuum receiver atmospheric valve to speed receiver cover removal for cleanout or service.

Connecting Vacuum Receivers with Sequence-T Valve Compressed Air Lines

See Figure 37 on the following page for an illustration of a typical sequence-T valve. Critical dried resin systems sometimes require sequence-T valves to prevent drawing humid atmospheric air into the material supply. Sequence-T valves are usually installed in the vacuum header above the vacuum hoppers.

NOTICE

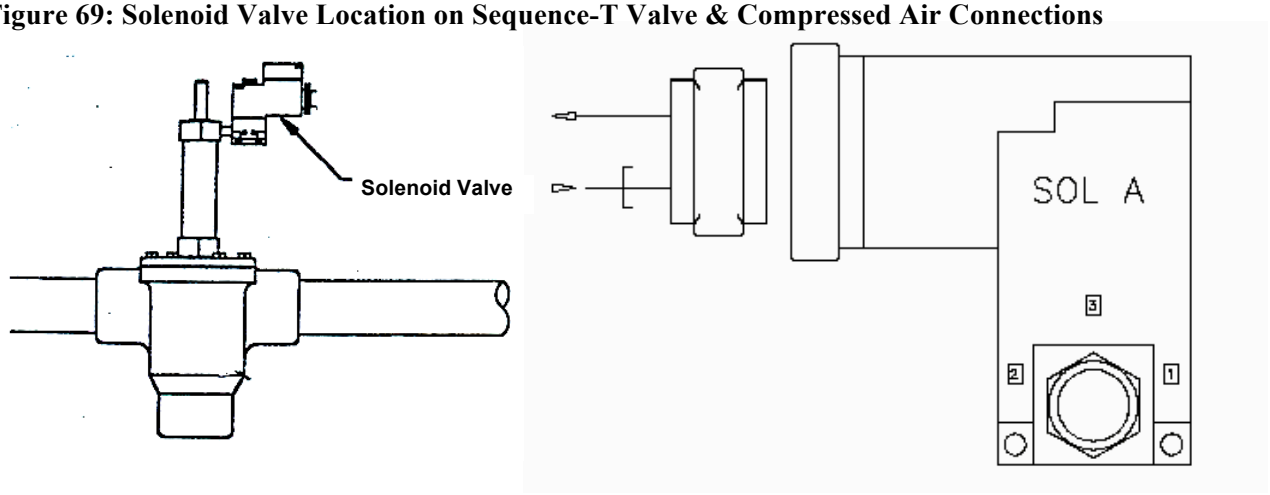
The sequencing valve is located in the cover on SR Series vacuum receivers if you selected the internal sequencing valve option.

If mounted in the vacuum line, connect the sequence-T valve to a 60 psi to 80 psi (414 kPa to 552 kPa) source of clean, dry, lubricated compressed air.

Run a ⅜" (9 mm) branch line off the plant air main to the sequence T valves in your system. Install a ⅜" (9 mm) x ⅛" (3 mm) tee in the up position near each receiver.

Connect compressed air to the normally open port on top of the sequence-T valve solenoid valve with a ⅛" (approx. 3 mm) pipe nipple. Connect the common port to the sequence-T valve using ¼" (6 mm) poly tube and connectors. See the following for more information.

Figure 69: Solenoid Valve Location on Sequence-T Valve & Compressed Air Connections



(1) Normally Closed Port = Exhaust Port
(2) Common = Connect to Valve
(3) Normally Open = Connect to Air Supply

Your $^{3}/_{8}$" (9 mm) branch supply line should include:

1. A shutoff valve for ON/OFF control.
2. An air filter/pressure regulator with a gauge for pressure control.
3. Mini-lubricators located at each vacuum receiver.

Running Remote Proportioning Valve or Proportioning Vacuum Receiver Compressed Air Lines

You must run compressed air to any proportioning valves in the system. Refer to the Proportioning Valve operating manual for detailed installation and operation information.

3-6 Electrical Connections

Refer to local electrical codes, the schematic, and connection diagrams supplied with this unit and the serial tag for wiring considerations. Run all wiring in conduit if codes require it. Label all wiring to make any future troubleshooting easier. Make all electrical connections *tight*.

Making ACA Series Filter Chamber Electrical Connections

Be safety conscious! High or low voltage can cause serious or fatal injury. Installation must be performed by qualified personnel only!! Always disconnect power source before attempting installation or repair.

Mount the control box in any convenient location free from excessive vibration where the temperature does not exceed 120ºF (49ºC). Power supply and solenoids are 115/1/60 for Models 91/93, 131/133, and 251/253 ACA filter chambers; choice of 115 VAC, 230 VAC or 24 VDC on 51/53 models. Locate the power supply terminal inside the control enclosure. Provide a hole as needed for the power supply cord and connect to L1, L2, and ground. See the electrical schematic wiring diagram supplied in your Customer Information Packet for more information.

Provide another hole in the control enclosure for wiring the solenoid valves on the filter chamber. Locate the terminal strip inside the control enclosure and connect the solenoid valve wiring in the order shown in the electrical schematic wiring diagram supplied in your Customer Information Packet. The order of wiring determines the sequence of the filter bag cleaning air pulses.

Making Pump Power Drop Wiring Connections

Pump packages are connected to a three-phase power supply. Bring properly sized power leads in conduit to the contacts in the junction box of each pump package in the system. Complete the pump wiring connections by performing the following:

- Install a properly-sized fused disconnect switch with lockout on the main lines to each vacuum pump package. This is recommended even for pumps with optional fused disconnects.
- Check the serial tag for voltage and amperage requirements. On 60 Hz units, voltage supplied to the unit must be within plus or minus ten percent (±10%) of the serial tag value; on 50 Hz units, within plus or minus five percent (±5%) of the serial tag value. Phase imbalance must be less than 2% in accordance with NEMA MG1-14.32.
- Ground the unit for operator safety and equipment protection.

Making Control Panel Power Drop Wiring Connections

Plug the controllers' power cord into a properly grounded, 3-slot, 115/1/60 VAC or 230/1/60 VAC receptacle as specified on the control panel serial tag and the enclosed controller Operation and Instruction manual. The control enclosure draws less than 5 amps during normal operation at 115/1/60 VAC.

⚠CAUTION

The manufacturer recommends that you protect PLC memory by providing the control panel with a dedicated circuit, a true earth ground, and a spike/surge protector.

Connecting the Control Panel to Vacuum Receivers

Refer to the wiring connection drawings shown on the next page and to your conveying control panel's diagrams for general connections.

NOTICE

Each control panel is supplied with specific control schematics and a separate Operation and Instruction manual. To ensure proper conveying system operation, install the equipment according to the enclosed instructions.

- Wire the Atmospheric/Sequence-T solenoid (SOL) valve to the terminal provided in the conveying system control panel enclosure.
- Wire the Bin Full/Hopper Full switch (LS/PRS) to the terminal provided in the conveying system control panel enclosure.
- On 115 VAC control voltage systems, run a common hot (115 VAC) wire and a common neutral wire from the controller to each vacuum receiver in the conveying system.
- On 24 VDC control voltage systems, run a common +24 VDC wire and a common 0 (zero) VDC wire from the controller to each vacuum receiver in the conveying system.
- On all systems, run two wires to each vacuum hopper: one each from the controller to the Bin-Full switch (LS) and to the Atmospheric/Sequence-T solenoid (SOL) valve.

NOTICE

The conveying system control panel is supplied with a terminal strip at the upper right corner for + positive and – negative wire connections.

- ***Be sure the solenoid and proximity switch(es) (if supplied) on vacuum receivers are the same voltage (24 VDC or 115 VAC) as the conveying system control panel control voltage. Consult the control panel serial tag and the solenoid valve nameplates.***
- ***Wire size depends on control voltage, distance, number of vacuum receivers, and the number of wires in each raceway. Consult a qualified electrician.***
- ***Properly ground each receiver to reduce static build-up generated by material conveying.***

Figure 70: Volume-Fill, Time-Fill, Vacuum Receiver Wiring Connections

115 VAC Control Circuit

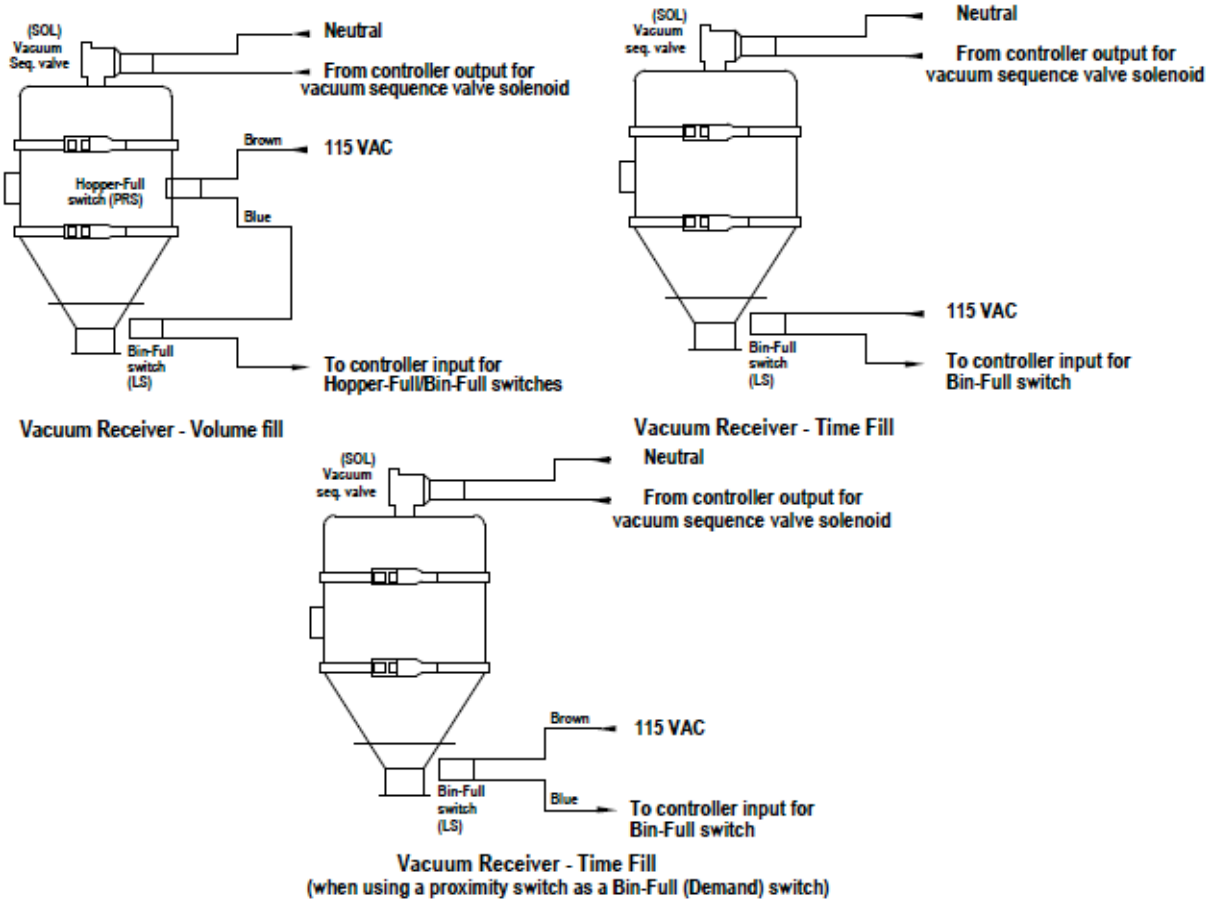
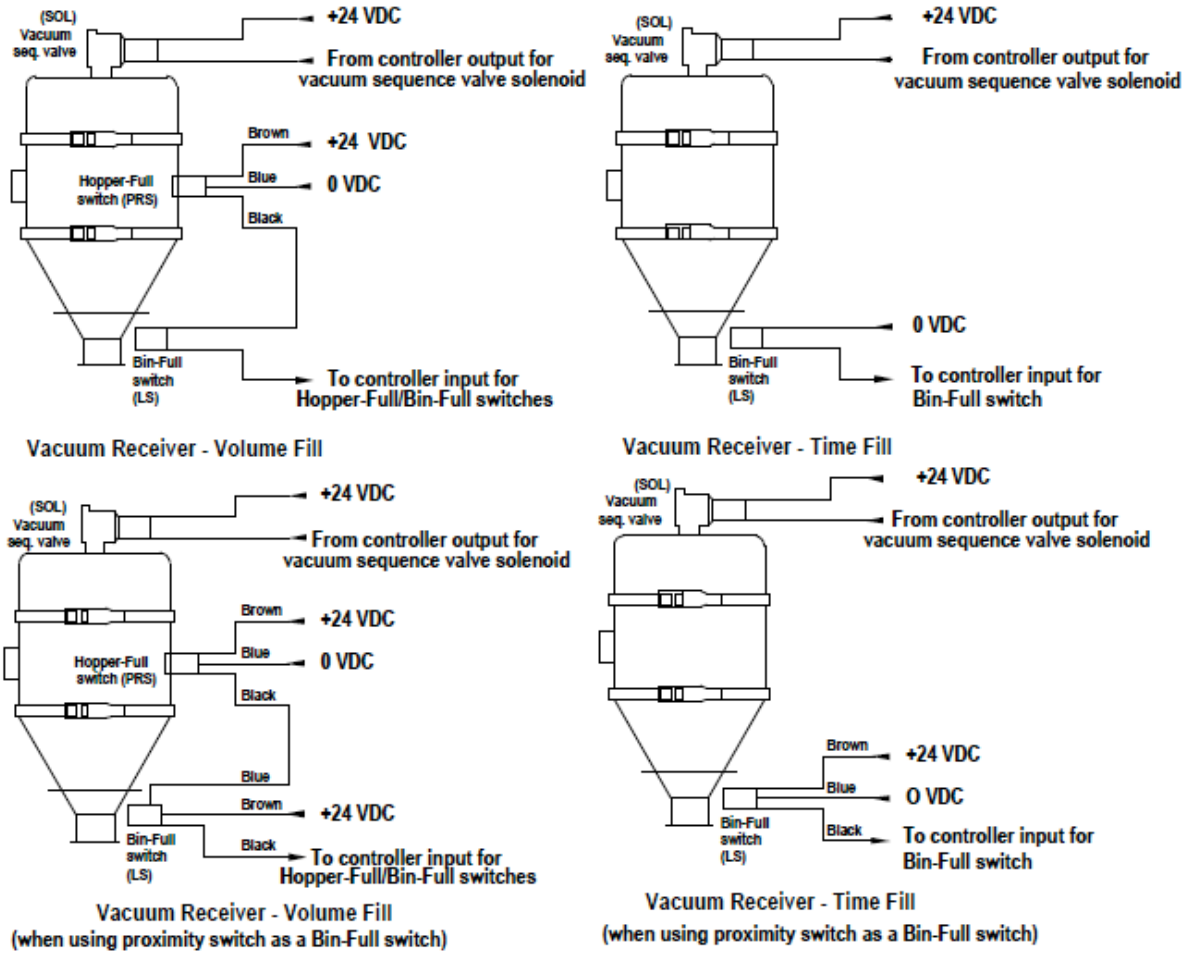


Figure 71: Volume-Fill, Time-Fill, Vacuum Receiver Wiring Connections

24 VDC Control Circuit



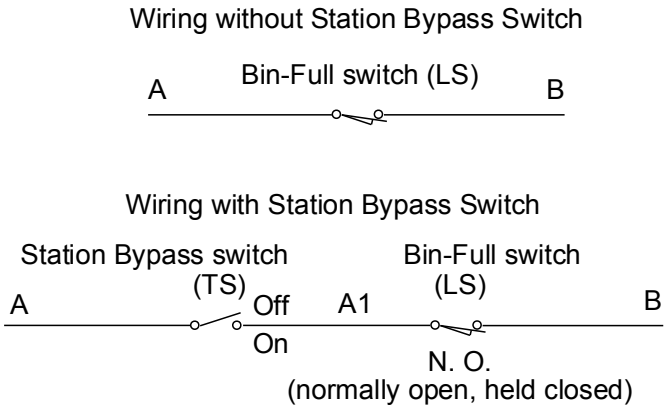
Installing Station Bypass Switches

The manufacturer recommends field-installing a station bypass switch (shown below) in a convenient location at each vacuum hopper in series with the flapper dump Bin Full (LS) switch. Check local codes.

Turning off this bypass switch simulates a full machine bin, cancels a No-Convey alarm, and takes the receiver out of the loading sequence until the switch is closed. This allows on-the-fly processing changes and cancels No-Convey alarms.

If the bypass switch is turned off while a hopper is filling, the switch simulates a full vacuum hopper and stops the conveying of material to that hopper *immediately*.

Figure 72: Recommended Field-Installed Optional Station Bypass Switch



Connecting the Control Panel to the Pump Package

NOTICE

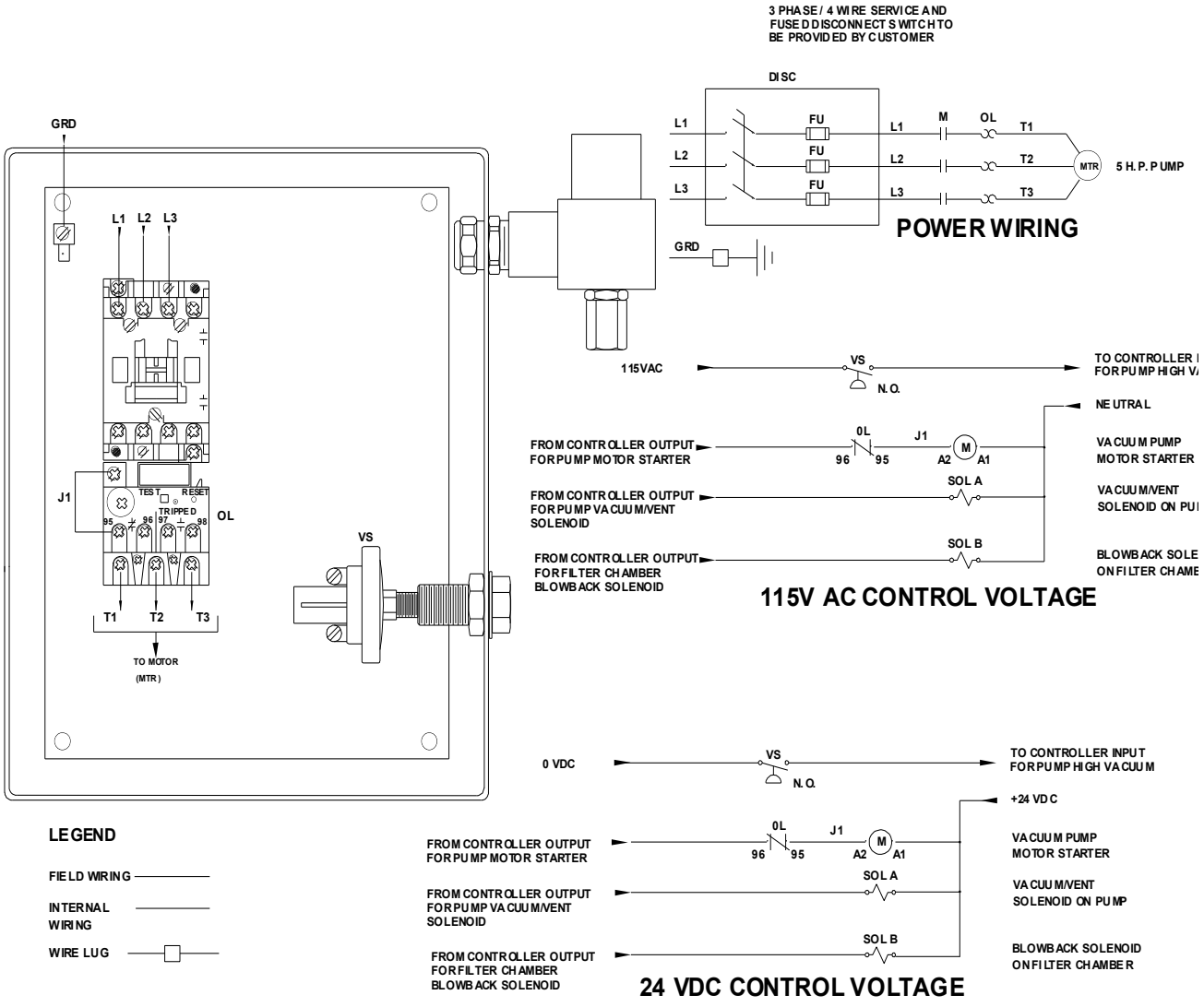
Consult the specific schematics and Operation & Instruction manual supplied with your controller for your specific application.

- Wire the pump package motor starter coil (M) to the terminal provided in the conveying system control panel enclosure.
- Wire the pump package vacuum relief valve solenoid (SOL A) to the terminal provided in the conveying system control panel enclosure.
- Wire the pump package high vacuum switch (VS) to the terminal located in the conveying system control panel enclosure.
- On VTPB pumps, wire the pump package blowback solenoid (SOL B) to the terminal located in the conveying system control panel enclosure.
- On 115 VAC control voltage systems, run a common hot 115 VAC wire and a common neutral wire from the controller to the pump package in the conveying system.
- On 24 VDC control voltage systems, run a common +24 VDC wire and a common 0 (zero) VDC wire from the controller to the pump package in the conveying system.

NOTICE

Make sure that the pump motor starter, the vacuum relief valve solenoid, and the blowback solenoid (if supplied) are the same voltage (24 VDC or 115 VAC) as the conveying system control panel control voltage. Consult the control panel serial tag and the pump package serial tag. Wire size depends on control voltage, distance, number of vacuum hoppers, and the number of wires in each raceway. Consult a qualified electrician.

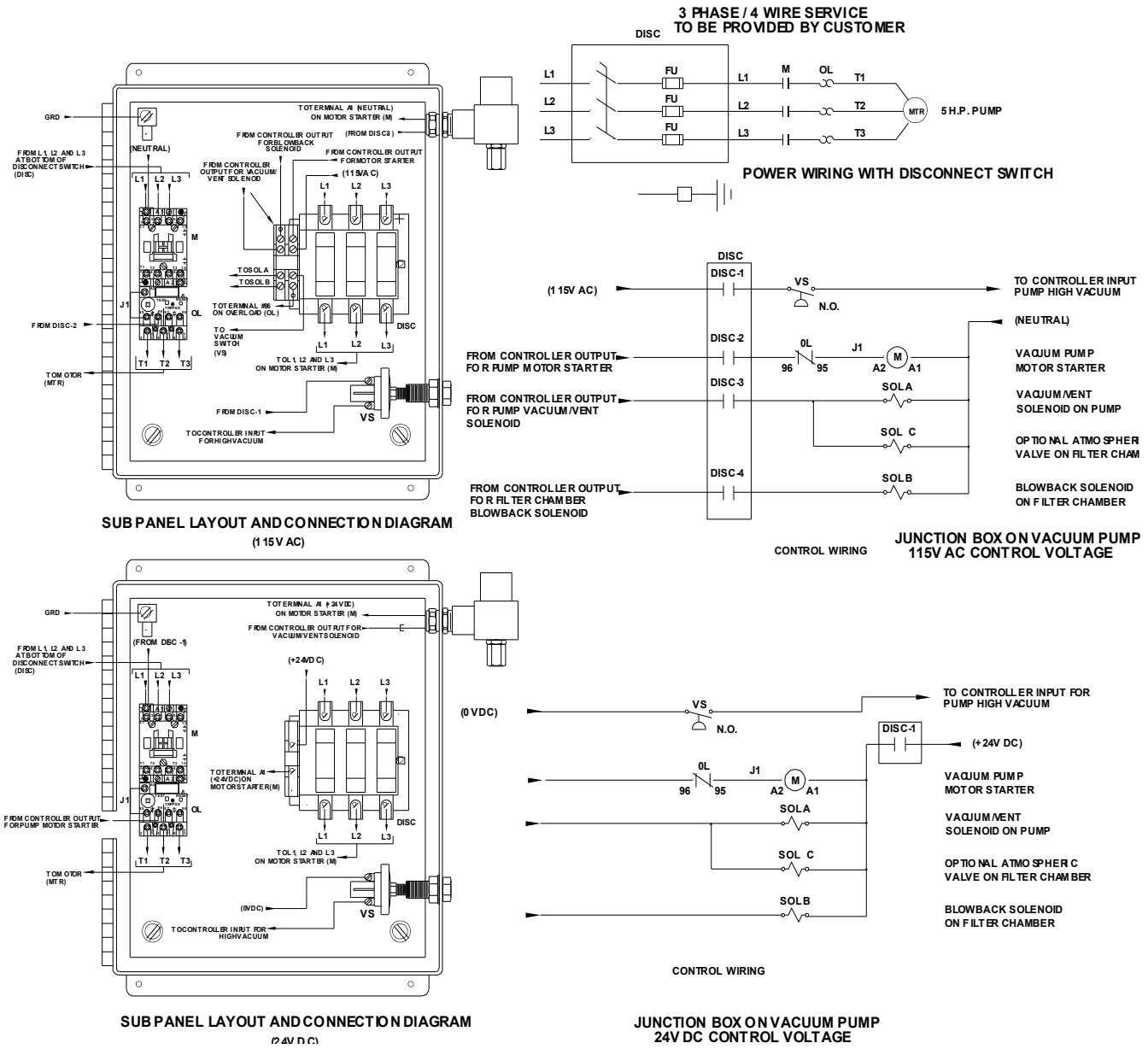
Figure 73: Typical VTP, SPD, CPD Series Junction Box Wiring Diagram



NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

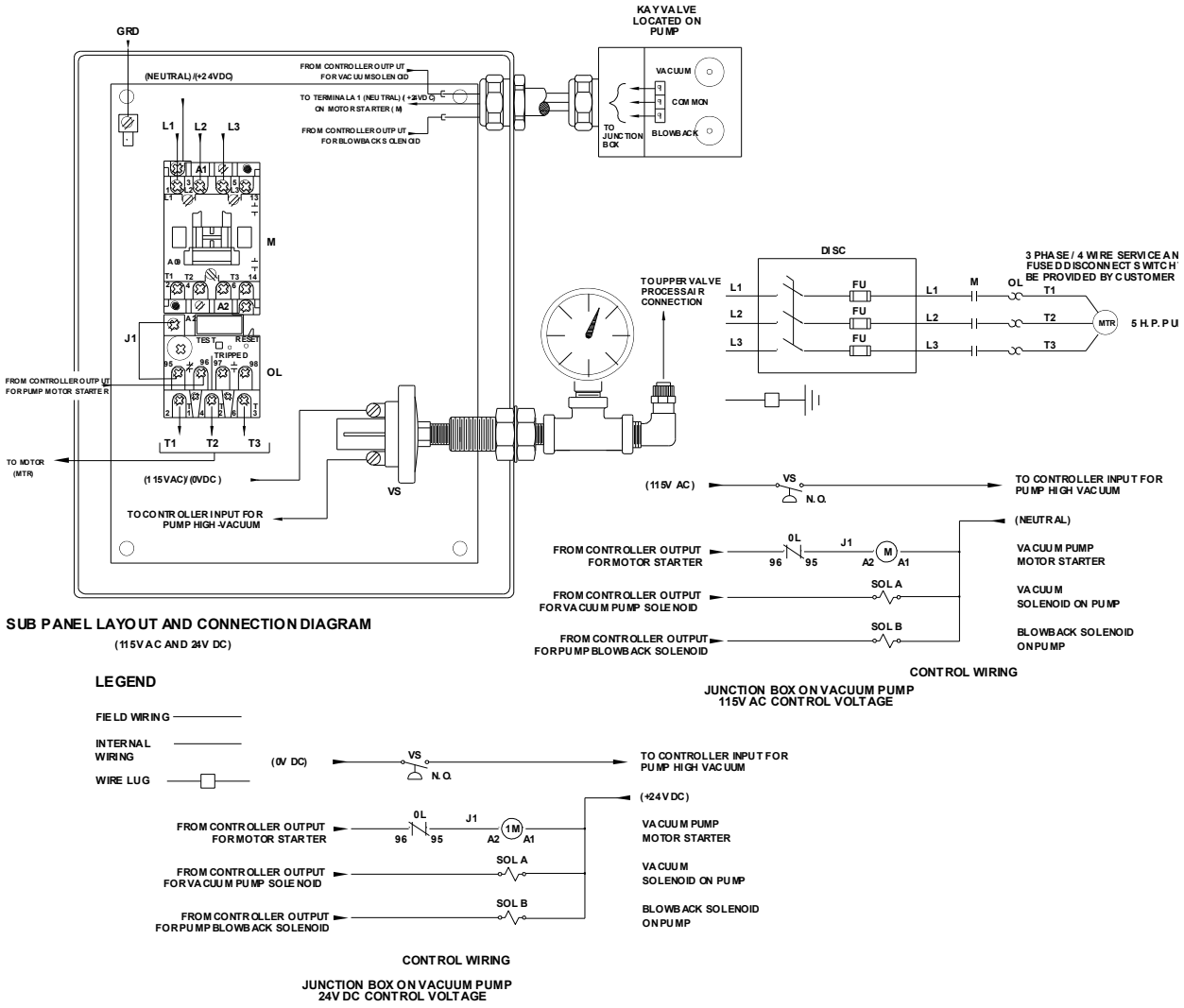
Figure 74: Typical VTP, SPD, CPD Series Junction Box with Fused Disconnect Wiring Diagram



NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

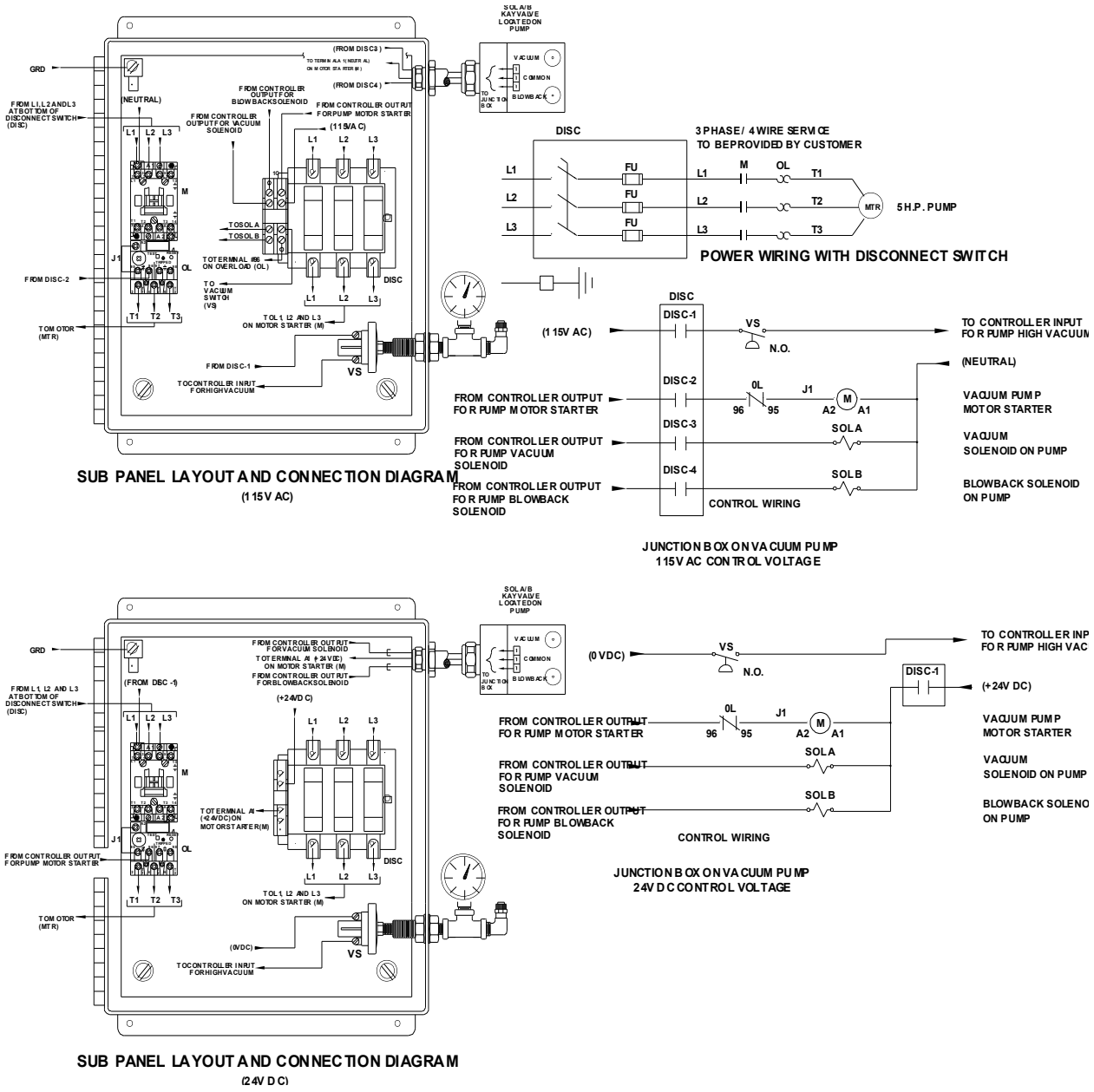
Figure 75: Typical VTPB, SPDB, CPDB Series Junction Box Wiring Diagram



NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

Figure 76: Typical VTPB, SPDB, CPDB Series Junction Box with Fused Disconnect Wiring Diagram

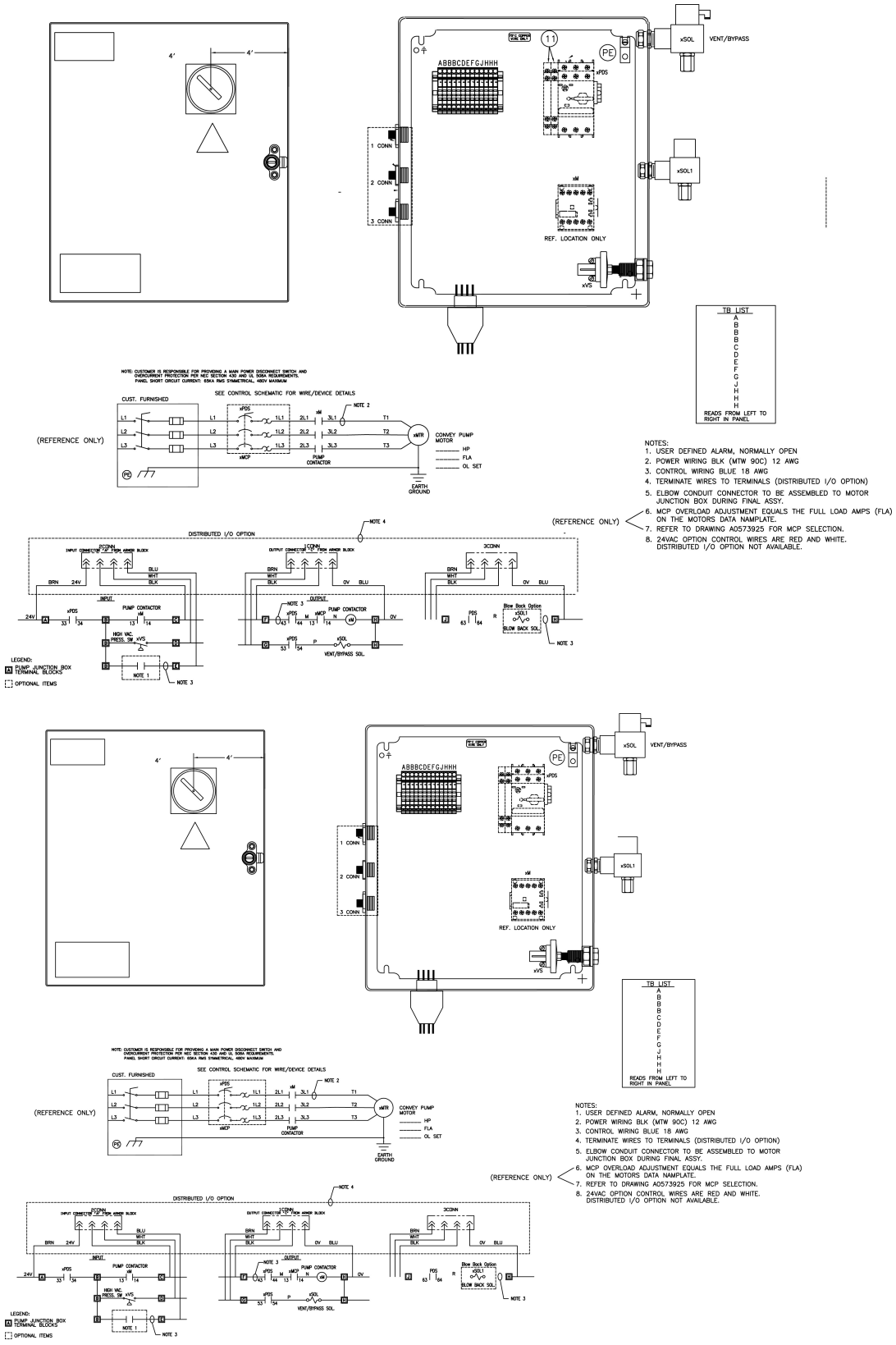

SUB PANEL LAYOUT AND CONNECTION DIAGRAM
(115V AC)
POWER WIRING WITH DISCONNECT SWITCH
3 PHASE/ 4 WIRE SERVICE
TO BE PROVIDED BY CUSTOMER
5 H.P. PUMP
CONTROL WIRING
JUNCTION BOX ON VACUUM PUMP
115V AC CONTROL VOLTAGE
SUB PANEL LAYOUT AND CONNECTION DIAGRAM
(24V DC)
JUNCTION BOX ON VACUUM PUMP
24V DC CONTROL VOLTAGE

NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

Figure 77: Typical APDB, SPDB, CPDB 5-15 Series Junction Box Wiring Diagram

24VDC, Distributed I/O

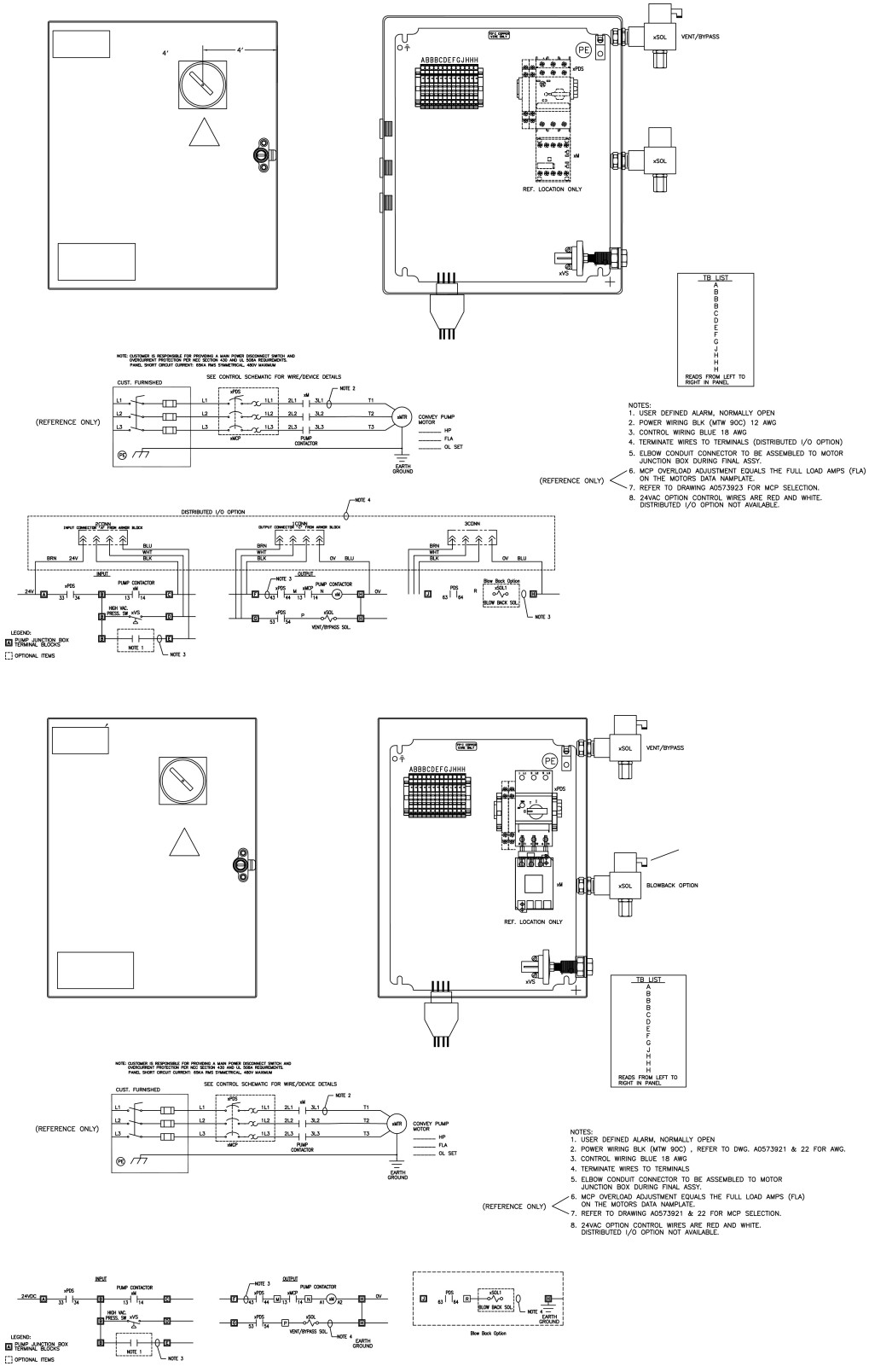


NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

Figure 78: Typical APDB, SPDB, CPDB 5-15 Series Junction Box Wiring Diagram

24 VDC

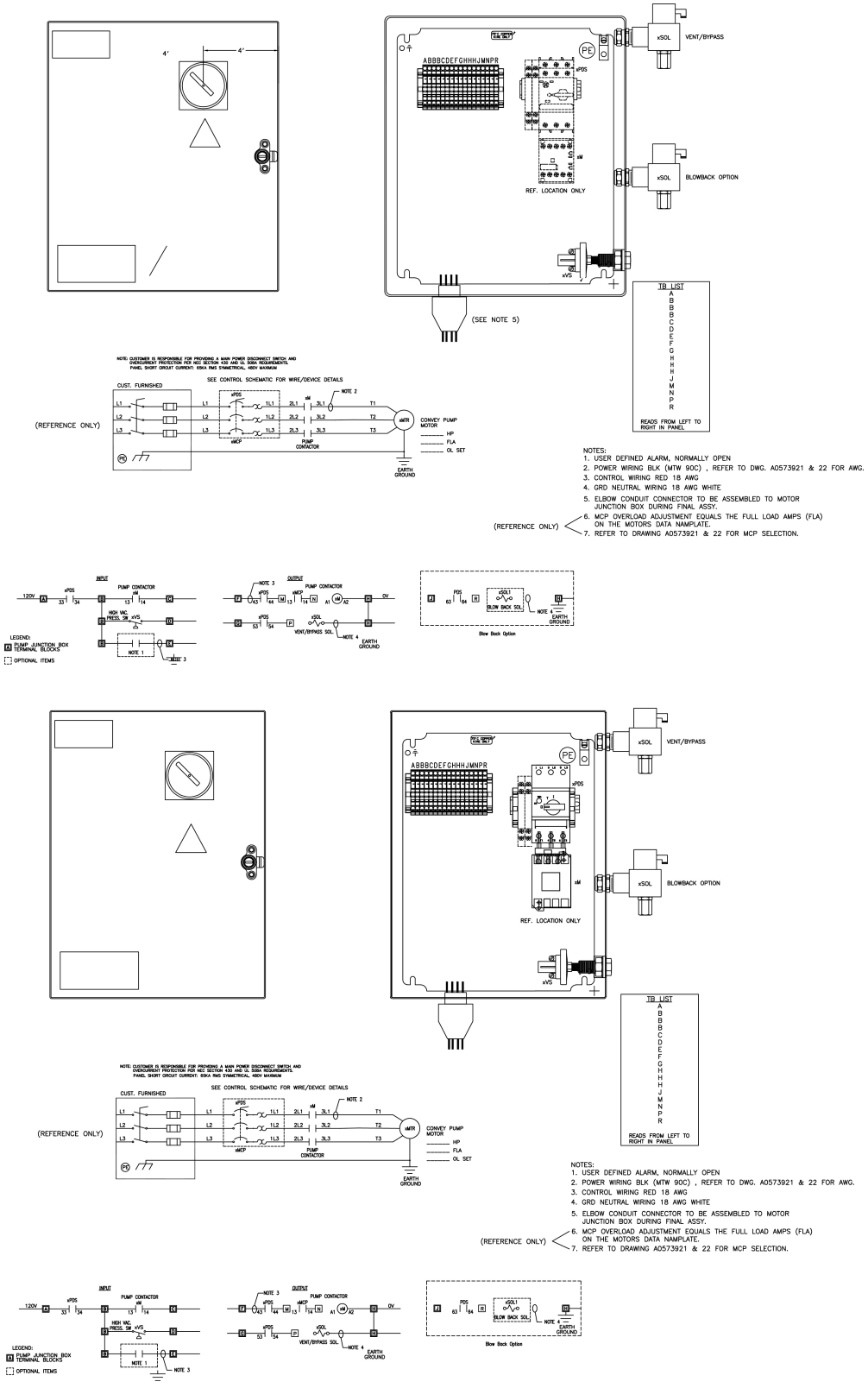


NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

Figure 79: Typical APDB, SPDB, CPDB 5-15 Series Junction Box Wiring Diagram

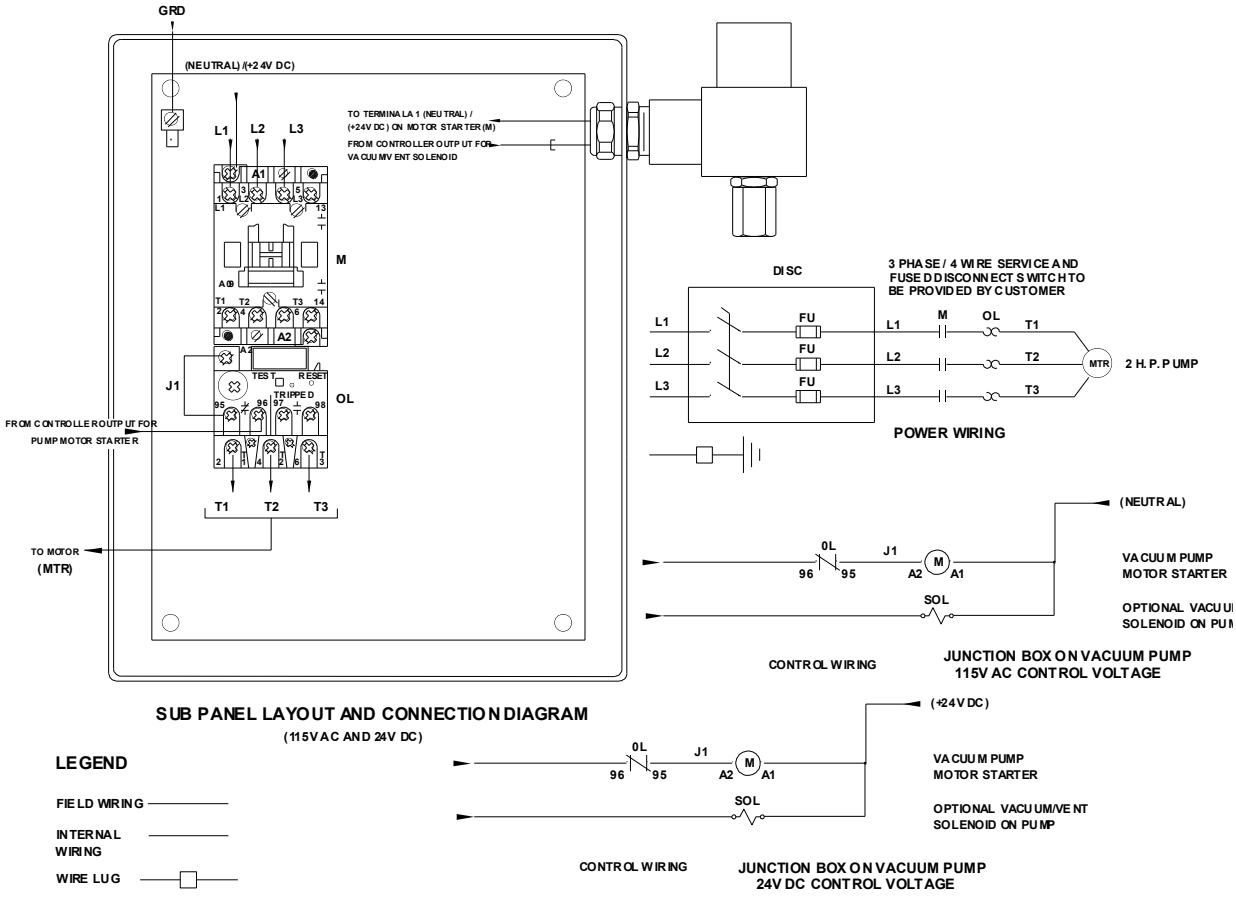
120 VAC



NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

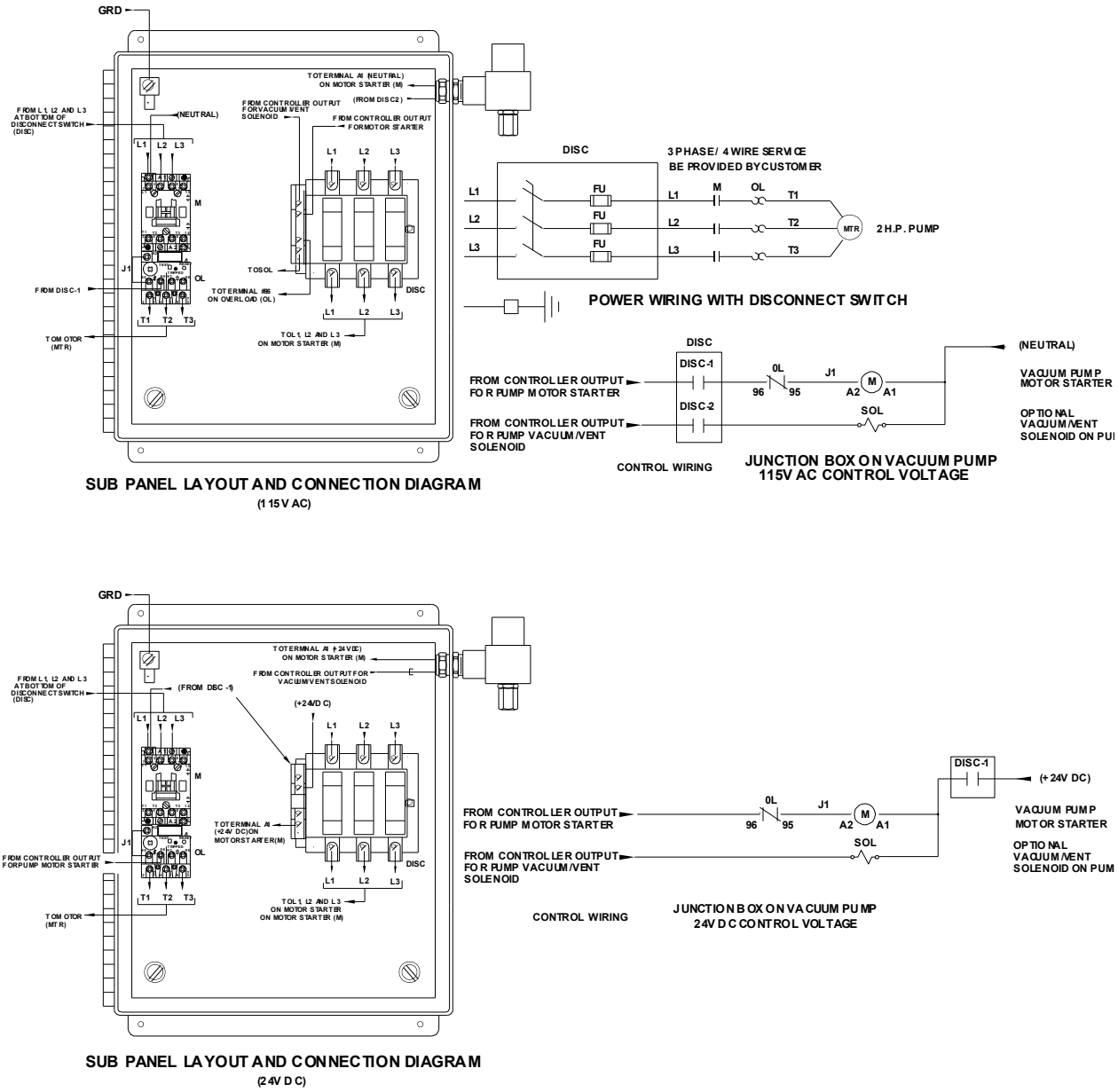
Figure 80: Typical VTTV Series Junction Box Wiring Diagram



NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

Figure 81: Typical VTTV Series Junction Box with Fused Disconnect Wiring Diagram



NOTICE

This information is shown for reference only. Refer to the electrical Schematics that were supplied with your equipment and controls for specific wiring information.

3-7 Initial Start-up

Making Startup Checks

Before operating the conveying system, check these details:

1. All components in the system must be installed securely and prepared for operation. Refer to the instructions supplied with auxiliary equipment for specific checks.
2. Couplers, fittings, attachments, and flexible lines must be attached securely and be vacuum-tight.
3. Electrical and compressed air connections to the pump package, vacuum hoppers, and filter chambers must be complete, safe, and conform to code.
4. The pump package blower gearbox must be filled with oil as specified in the manufacturer's instructions included in the customer information package.

⚠CAUTION

***Do not overfill the blower gearbox with oil;* too much oil damages the blower.**

5. If not done already, remove the plastic plug from the silencer air outlet.

⚠WARNING

Keep hands away from the open air inlet to avoid injury!

6. Do not allow any loose parts, tools, or foreign materials in or near the unit and other system components.
7. Check for proper motor rotation, as indicated by an arrow on the pump package motor. Bump-start the pump package with the compressed air disconnected just long enough to verify proper rotation direction.

NOTICE

To change motor rotation:

a. Disconnect power at the external disconnect.

b. Switch any two incoming power leads on the main power supply.

8. Make sure that filter chamber housings have no leaks; check stretcher clamps for tightness.

Adjusting Sight Glass Proximity Sensor Sensitivity

You can adjust the sensitivity of the material level proximity sensor in the sight glass. The factory setting usually is correct for most applications. The sensor is factory-installed to the frame; however, you should install the sensor at the material level height you want.

When adjusting, fill the glass and verify that the sensor detects your material. The LED on the switch *goes out* when it detects material.

- For increased sensitivity, turn the potentiometer clockwise.
- For decreased sensitivity, turn the potentiometer counterclockwise.
- Consult proximity switch instructions if necessary or call Service Department.

Adjusting Air Pulse Duration: All Models

Locate the on-time potentiometer inside the control enclosure on the circuit board. With the unit operating, turn the potentiometer counterclockwise to shorten the air pulse duration; *turn clockwise to lengthen* the air pulse.

ACA Series Filter Chamber Pre-Operation Checklist

Check the following before you operate ACA Series filter chambers:

1. Make sure all mechanical installations are complete.
2. Make sure all electrical and compressed air connections are complete and correct.
3. Make sure that no leaks are present in the filter chamber housing. Check stretcher clamps for tightness.

Adjusting Time Between Air Pulses on ACA Filters

Models 91/93, 151/153, and 251/253

The time between cleaning air pulses requires adjusting to match up with dusting characteristics of the material being conveyed. If more dusting occurs, then more frequent compressed air pulses are required to clean filter bags.

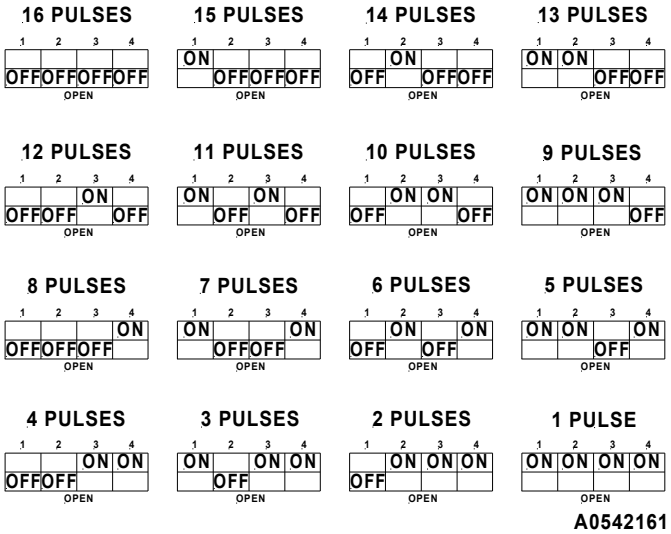
Locate the off-time control potentiometer inside the control enclosure and adjust from 0- to 30-second intervals between air pulses to match material conveying characteristics.

Adjusting the Number of Air Pulses

Model 51/53 Low Boy

Locate the DIP switch inside the blowback control box. Set the DIP switch to the number of pulses you want from 1 to 16, using the DIP switch settings shown in the following figure. The diagram is also shown on the blowback control box electrical schematic located in your Customer Service Packet.

Figure 82: ACA Series Model 50 Blowback DIP Switch Settings



Starting ACA Series Filter Chamber Units

With all adjustments complete, turn on clean, dry, oil-free compressed air and regulate to 60 psi to 80 psi (414 kPa to 552 kPa). Turn the power on/off switch to ON; the unit then automatically self-cleans the filter bags. An indicator light on the control box for Model 91/93, 151/153, and 251/253 ACA filter chambers illuminates each time a compressed air pulse is directed into a filter bag.

If for any reason the power is turned off, wait at least three (3) seconds to reset.

NOTICE

During initial startup, you'll note some dusting occurring at the clean air exhaust. This condition is normal with new filter bags until the exterior surfaces of the bags become evenly coated with dust particles, which prevents fine material from passing through the filter bag pores. This dusting condition should stop after the first several hours of operation.

Adjusting Proximity Sensor Sensitivity

Models Equipped with Volume-Fill Switch Only

A proximity switch mounted in VF, SRH and SRC vacuum receivers detects when the vacuum receiver has been filled during a conveying sequence, telling the conveying system control to move on to the next on-line vacuum receiver in the sequence. This speeds the conveying cycle and shuts the pump down promptly to conserve electricity if all the bins being loaded are full.

The sensitivity of the vacuum receiver material level sensor can be adjusted. The factory setting is correct for most applications. The sensor is mounted through the wall of the vacuum receiver.

NOTICE

The adjusting potentiometer is located beneath a plastic cover screw near the sensor LED indicator. Remove the protective cover screw before making adjustments and replace it when finished.

Before adjusting the Receiver-Full sensor, make sure that the Bin Full sensor is in the closed position.

When adjusting, fill a vacuum hopper to see if the switch detects your material. The LED on the switch *goes out* when it detects material.

- For increased sensitivity, turn the potentiometer clockwise.
- For decreased sensitivity, turn the potentiometer counterclockwise.
- Consult proximity switch instructions if necessary or call Service Department.

Chapter 4: Operation

4-1 Start-up

Starting ACA Series Filter Chamber Units

Turn on clean, dry, oil-free compressed air and regulate to 60 psi to 80 psi (414 kPa to 552 kPa). Turn the power on/off switch to ON; the unit then automatically self-cleans the filter bags. An indicator light on the control box for Model 91/93, 151/153, and 251/253 ACA filter chambers illuminates each time a compressed air pulse is directed into a filter bag.

NOTICE ***If for any reason the power is turned off, wait at least three (3) seconds to reset.***

4-2 Operation Procedures

When you activate the controller, the system energizes and initiates the conveying cycle. The following components energize:

- The vacuum pump motor starter.
- The vacuum pump vent valve.
- The sequencing valve above the first on-line vacuum receiver that requires material.

The vacuum pump draws vacuum to that receiver. When the receiver is full or the time interval elapses, the controller then signals the atmospheric valve above the next on-line receiver requiring material to energize, allowing material to convey to that receiver. The conveying sequence continues to the last on-line vacuum receiver requiring material.

When the time interval for the last receiver elapses or the receiver is full, a new conveying cycle begins at the first on-line vacuum receiver requiring material.

NOTICE ***The sequence of events listed above is a generalized description of what occurs when a controller is activated. Consult your specific controller manual for an accurate depiction of these events.***

Vacuum Switch (VS) Operation

A high vacuum switch is mounted inside a pump package junction box. It is preset to close at 14” Hg (475 millibars) and is not adjustable. The vacuum switch protects the pump package from motor damage caused by high amperage draw and strain on the blower.

Pumps typically draw a vacuum of less than 5” Hg (170 millibars) only when air is pulled into the system and 8” to 12” Hg (271 to 339 millibars) while conveying.

If system vacuum should reach 14” Hg (475 millibars), the high vacuum switch closes. The pump package tries to clear the line for three seconds, then moves to the next on-line vacuum receiver. The normal conveying cycle continues. If high vacuum keeps occurring, the pump continues with attempts to clear the line.

See your specific controller manual for additional operation information.

High Vacuum Relief Regulator Operation

A factory-set pressure regulator is installed on the pump package vent valve as a mechanical back-up safety feature. It protects the pump motor from damage during high vacuum conditions if an undetected failure of the vacuum switch should occur. The regulator is set to limit system vacuum to 15” Hg (475 millibars) by allowing the vent valve plunger to shift and vent the pump. APC, SPC, CPC vacuum relief is set at lower levels based on vacuum pump performance curves.

NOTICE

Do* not *adjust the pressure regulator. Adjusting the pressure regulator voids your warranty.

See Figure 41 on page 79 for additional operation information.

4-3 Shut-down

To deactivate the conveying system:

1. Turn the disconnect switch at each pump or component to OFF. This will take each pump or component offline.
2. Turn off the compressed air supply to the system.

NOTICE

Consult your specific controller operation and instruction manual for specific shut-down information for your conveying system.

Chapter 5: Maintenance

5-1 Preventative Maintenance Schedule

The checklist below contains a list of items, which should be inspected and/or replaced to keep the mechanical components of your conveying system operating at peak efficiency. Perform each inspection at the regular intervals listed below.

System model #						Serial #							
Every week	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**	**Date/ By**
Inspect all filters for wear, replace/ clean if dirty or worn.													
Check to make sure that all hose connections are air tight.													

Every month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lock out electrical power and inspect electrical wiring for integrity.												
Check demand sensor.												
Inspect gaskets at hoppers.												
Inspect belt(s).												
Oil & grease (lubricate) components												

- Photocopy this page for your maintenance records -

5-2 Preventative Maintenance

Maintaining Pump Packages

Pump packages need periodic maintenance to provide long dependable service. Check these elements regularly:

- Maintain a proper oil level in the blower gearbox. The manufacturer's brochure (packed with the pump package) recommends oils, and lists instructions for checking the oil level. See Oil Capacities chart on following page.
- Pack blower bearings with high temperature ball bearing grease and change the oil to the manufacturer's recommendations.
- V-belts are sized for maximum life with the pump package blower/motor combination. Inspect periodically for proper tension, and replace when worn.

NOTICE

V-belts stretch when new. Check belt tension after you have run them in. At* proper *belt tension, the belt should deflect downward 1/64" for every one inch span (1 mm every 6.4 cm) from sheave to sheave.

- Keep the pump package area clear of any debris that could be drawn through the vent valve and into the blower while the pump package is idling.
- Torque the motor and blower sheave bolts to 72 ft.-lbs. (98 N•m).
- Check the moisture traps in the compressed air lines. Drain as needed.
- Check the compressed air lubricator(s) for flow rate and level. **Use only 1 or 2 drops of oil per day** when lubricating. Adjust and fill as necessary.
- Inspect the silencer periodically for contamination. Silencer fouling indicates poor filter maintenance at the vacuum hopper or filter chamber. Fines may also be drawn into the silencer through the pump package vent valve during the dump cycle from poor housekeeping near the pump package.

⚠CAUTION

Make sure you replace a contaminated silencer* immediately *to avoid blower damage and possible fire hazard.

- Standard pump package TEFC motors do *not* require lubrication or oiling. Optional motors may have different requirements. Refer to the motor manufacturer's specification sheet in your Customer Information Packet.
- Keep the control panel and pump package junction boxes securely closed to prevent component contamination.
- Inspect air cylinders and plugs for proper operation.
- Verify that all safety components/circuits are in full operational conditions.

Figure 83: Oil Capacities-APD, SPD, CPD Only*

Model	Part No.	Frame	Vertical[1]		Horizontal[1]	
			GE (OZ)	DE (OZ)	GE (OZ)	DE (OZ)
URAI-J 33	**A0571182**	3" DSL	8.5	4	16	6.5
URAI-J 45	**A0571183**	4" DSL	12.7	5.5	22.8	10.8

[1]GE= GEAR END, DE = DRIVE END

Suggested Lubricants:
Synthetic Oil

Size of container	Part #
Quart	214.00002.00
Gallon	A0573982
Case	214.00004.00

APD, SPD, CPD style vacuum blowers require a synthetic blend of lubricant for proper operation. Using other types of lubricant may void all warranties.

NOTICE ***For more information, refer to the blower manufacturers instruction manual.***

Maintaining Filter Chambers

VFC, SFC, CFC Filter Chambers

VFC, SFC, CFC filter chamber maintenance is much easier if you use vinyl flex hose for making the final connection to the cover. See Figure 62 on page 126 for a complete parts list.

To check the filter element:

1. Unlatch the clamp that secures the cover assembly.
2. Lift off the cover and look for element fouling or wear:
    - If the filter is worn, replace with P/N A0547008 (VFC225) or P/N A0547007 (VFC1000).
    - If the filter is lightly soiled, remove the filter and clean with compressed air. Blow it out from the inside.
3. To remove the filter:
    a. Note the orientation of the components.
    b. Unscrew the retaining cover.
4. Wipe down the gasket and filter retainer/VFC cover mating surfaces to ensure a good seal.
5. Blow out the cartridge filter with compressed air. Blow from the inside out.
6. Re-install the filter and filter retainer. Do not over tighten the retainer. A snug fit is required for a proper seal.
7. Secure the cover assembly with the clamp.
    - Periodically inspect the flapper assembly gasket and disk for signs of wear. A good vacuum seal is important for proper operation.
    - Periodically inspect the flapper dump assembly for proper operation. The flapper should swing freely.

NOTICE

The counterbalance should be adjusted so the flapper remains open from $^{3}/_{16}$" (4 mm) to $^{1}/_{4}$" (6 mm) when not under vacuum.

Inspecting ACA Series Filter Chamber Filter Bags

Schedule regular filter bag inspections to maintain the operational efficiency of the filter chamber. Make sure that schedules coincide with materials that are being conveyed. Dusty materials require more frequent filter bag examinations.

1. Turn off compressed air and disconnect the electrical power supply.
2. Remove the stretcher clamp just below the externally mounted solenoid valves. Be careful to avoid damaging the gasket between tank sections.
3. Lift off the upper tank section with accumulator, blowpipes, and filter bag rack.
4. Inspect the filter bags for dust caking, dampness, or oil deposits.
Any or all of these symptoms are indications of moisture or condensed oil in the compressed air supply.

5. Check compressed air supply in-line filters and clean or replace as needed. If moisture is condensing inside the filter chamber, you may need to insulate the chamber and the piping leading to the filter. This action should keep the surface moisture above the dew point and prevent condensation on filter bags.
6. Do not attempt to wash or reuse soiled ACA filter bags. If they are clogged, replace them with new filter bags. Contact the Parts Department for more information on replacement filter bags.
7. Inspect the filter bags for wear. Thinning bags may not stop fine dust when flexed with compressed air, or dust can escape into the clean air tank section and contaminate conveying air. Replace with new filter bags as needed.

NOTICE

When re-installing ACA Series filter bags, make sure that the bag is turned inside out, with the glazed surface facing outward.

8. Carefully slip the bag over the bag cage. Position the filter bag all the way onto the bag cage, and place a clamp around the bag near the top of the bag rack plate. Tighten the clamp.

NOTICE

Improperly installed clamps cause a poor dust seal. Dusting in the clean air exhaust is a normal condition after installing new filter bags, and should stop after the first several hours of operation.

9. Replace the upper tank section, with the gasket properly seated between upper and lower sections. Make sure the filter bags are hanging straight down and that the bags do not touch each other or the inside walls of the filter chamber. This action prevents excessive bag wear when compressed air pulses enter the bags.
10. Replace and tighten the stretch clamp.

Maintaining VTPB, SPDB, CPDB Series Vacuum Power Unit Non-Reversing Valves

Upper and lower non-reversing valves require periodic service to keep VTPB, SPDB, CPDB Series vacuum power units operating at peak efficiency. Contact the Parts Department for information on valve service kits and customer-recommended parts.

Maintaining Upper Valves -5 to 15 HP (3.73-11.19 kW) VTPB Units

(See Valve Assembly Drawings and Spare Parts Lists in Figures 86-89 on pages 166-169)

Removing Upper Valves

1. Turn off and lock out the power switch for the vacuum power unit. Disconnect and lock out the power main to the unit; make sure to follow applicable safety regulations.
2. Turn off compressed air. Disconnect the compressed air line running to the pressure relief regulator.
3. Loosen the hose clamps that connect the upper valve to the incoming vacuum line and lower valve, and slide the hose back.
4. Loosen the set screws that secure the valve to the blower inlet.
5. Remove the valve from the power unit.

Disassembling Upper Valves

1. Remove the two (2) socket cap screws from the upper cap, and remove the upper cap.
2. Remove the six (6) socket cap screws from the end plate. Separate the end plate and air cylinder from the machined body.
3. Remove the cotter pin from the plunger. Unscrew the plunger from the air cylinder shaft.
4. Remove the four (4) socket cap screws holding the air cylinder to the end plate. Separate the cylinder and the end plate.

Servicing and Reassembling Upper Valves

1. Clamp the air cylinder in a vise and unscrew the end cap. Using parts from the valve service kit, replace the seals in the air cylinder. Screw the end cap back on.
2. Secure the air cylinder to the end plate using the four (4) socket cap screws.
3. Screw a new plunger on the air cylinder shaft; secure it with the cotter pin.
4. Place a new gasket on the end plate; secure the end plate.
5. Reattach the upper cap to the air cylinder using two (2) socket cap screws.

Reinstalling Upper Valves

1. Replace the O-rings in the machined body.
2. Position the valve on the blower inlet, making sure the valve seats properly. Tighten the set screws that secure the valve to the blower inlet.
3. Reconnect the valve inlet to the incoming vacuum line and the lower valve with the hose. Tighten the clamps.
4. Reconnect the compressed air line to the vacuum relief regulator.

Maintaining Lower Valves - 5 to 15 HP (3.73-11.19 kW) VTPB Units

Removing Lower Valves

1. Turn off and lock out the power switch for the vacuum power unit. Disconnect and lock out the power main to the unit; make sure to follow applicable safety regulations.
2. Turn off compressed air. Disconnect the copper compressed air line to the lower valve at the lower valve body.
3. Loosen the hose clamps that connect the valve to the T-Y tube, and slide the hose back. On units with optional sound enclosures, loosen the hose clamps between the discharge silencer and the U-bend.
4. Remove the screws holding the discharge silencer to the base of the vacuum power unit, and take off the discharge silencer. On units with optional sound enclosures, remove the screws securing the U-bend to the base, and pull the silencer out of the body of the lower valve.
5. Loosen the set screws holding the lower valve to the blower outlet, and remove the valve from the power unit.

Disassembling Lower Valves

1. Remove the pipe nipple and pipe coupler from the lower cap.
2. Remove the two (2) socket cap screws from the lower cap.
3. Remove the lower cap from the machined body.
4. Remove the six (6) socket cap screws from the end plate. Separate the end plate from the machined body.
5. Remove the cotter pin from the plunger. Unscrew the plunger from the air cylinder shaft.
6. Remove the four (4) socket cap screws holding the air cylinder to the end plate.

Servicing and Reassembling Lower Valves

1. Clamp the air cylinder in a vise and unscrew the end cap. Using parts from the valve service kit, replace the seals in the air cylinder. Screw the end cap back on.
2. Secure the air cylinder to the end plate using the four (4) socket cap screws.
3. Screw a new plunger on the air cylinder shaft; secure it with the cotter pin.
4. Place a new gasket on the end plate; secure the end plate to the machined body using six (6) socket cap screws.
5. Fasten the lower cap to the air cylinder using two (2) socket cap screws, a new gasket, and a new O-ring.
6. Screw the pipe nipple and coupler back into place.

Reinstalling Lower Valves

1. Replace the O-rings in the machined body.
2. Position the valve on the vacuum power unit. Tighten the set screws that secure the valve to the blower outlet.
3. Reconnect the valve to the T-Y tube by sliding the radiator hose back into place. Tighten the hose clamps.
4. Reconnect the copper compressed air tube to the fitting on the lower valve.
5. Push the discharge silencer into the valve body, and secure it with the screws. On units with optional sound enclosures, push the short silencer into the valve body, reinstall the U-bend, and secure both ends with the radiator hose and hose clamps.

Maintaining Upper Valves- 25 and 30 HP (18.65-22.38 kW) VTPB, SPDB, CPDB Units

(See Valve Assembly Drawings and Spare Parts Lists in Figures 56-57 on Pages 121-122)

Removing Upper Valves

1. Turn off and lock out the power switch for the vacuum power unit. Disconnect and lock out the power main to the unit; make sure to follow applicable safety regulations.
2. Turn off compressed air. Disconnect the compressed air line running to the pressure relief regulator on the upper valve.
3. Loosen the set screws securing the inlet filter, and remove the filter.
4. Loosen the hose clamps that connect the upper valve to the T-Y tube, and slide the hose back.
5. Loosen the set screws that secure the valve to the blower inlet.
6. Remove the valve from the power unit.

Disassembling Upper Valves

1. Remove the pipe coupler and the pipe nipple from the valve.
2. Remove the two (2) socket cap screws from the upper cap, and remove the upper cap from the valve body.
3. Remove the six (6) socket cap screws from the end plate. Separate the end plate from the valve body.
4. Remove the locknut from the air cylinder shaft.
5. Remove the two (2) plunger support discs and the plunger from the air cylinder shaft.
6. Remove the four (4) socket cap screws holding the air cylinder to the end plate. Separate the cylinder and the end plate.

Servicing and Reassembling Upper Valves

1. Clamp the air cylinder in a vise and unscrew the end cap. Using parts from the valve service kit, replace the seals in the air cylinder, and screw the end cap back on.
2. Fasten the air cylinder to the end plate using the four (4) socket cap screws.
3. Place the plunger support discs and a new plunger on the air cylinder shaft.
4. Thread the locknut back on the air cylinder shaft.
5. Reconnect the end plate to the valve body using six (6) socket cap screws and a new gasket.
6. Reconnect the upper cap to the air cylinder using two (2) socket cap screws.
7. Reconnect the pipe coupler and pipe nipple to the valve.

Reinstalling Upper Valves

1. Replace the O-ring in the valve body.
2. Position the valve on the power unit, making sure the valve seats properly. Tighten the set screws that secure the valve to the blower inlet.
3. Reconnect the valve inlet to the incoming vacuum line using the radiator hose. Tighten the clamps.
4. Reconnect the compressed air line to the vacuum relief regulator.
5. Secure the inlet filter to the valve, and tighten the set screws.

Maintaining Lower Valves-25 and 30 HP (18.65-22.38 kW) VTPB, SPDB, CPDB Units

Removing Lower Valves

1. Turn off and lock out the power switch for the vacuum power unit. Disconnect and lock out the power main to the unit; make sure to follow applicable safety regulations.
2. Turn off compressed air. Disconnect the copper compressed air line to the lower valve at the lower valve body.
3. Loosen the hose clamps that connect the valve to the T-Y tube, and slide the hose back.
4. Remove discharge silencers. Unscrew the vertical silencer and unbolt the bracket holding the silencer under the unit. Pull the silencer out of the valve body.
5. Loosen the set screws holding the lower valve to the blower outlet, and remove the valve from the power unit.

Disassembling Lower Valves

1. Remove the pipe nipple and pipe coupler from the lower cap.
2. Remove the two (2) socket cap screws from the lower cap.
3. Remove the lower cap from the machined body.
4. Remove the six (6) socket cap screws from the end plate. Separate the end plate from the machined body.
5. Remove the cotter pin from the plunger. Unscrew the plunger from the air cylinder shaft.
6. Remove the four (4) socket cap screws holding the air cylinder to the end plate.

Servicing and Reassembling Lower Valves

1. Clamp the air cylinder in a vise and unscrew the end cap. Using parts from the valve service kit, replace the seals in the air cylinder. Screw the end cap back on.
2. Secure the air cylinder to the end plate using the four (4) socket cap screws.
3. Screw the two (2) plunger support disks and a new plunger on the air cylinder shaft.
4. Thread the locknut back on the air cylinder shaft.
5. Place a new gasket on the end plate; secure the end plate and valve body using six (6) socket cap screws.
6. Reconnect the lower cap to the air cylinder using two (2) socket cap screws and a new O-ring.

Reinstalling Lower Valves

1. Replace the O-ring in the valve body.
2. Position the valve back on the vacuum power unit. Tighten the set screws that secure the valve to the blower outlet.
3. Insert the silencer into the valve body, and bolt it to the base at the bracket. Screw the vertical silencer back on.
4. Reconnect the compressed air line to the valve.
5. Reconnect the valve to the T-Y tube using the radiator hose and hose clamps. Tighten the hose clamps.

Maintaining Vacuum Receivers and Filter/ Receiver Combinations

- Clean the vacuum receiver filter cartridges as needed. Blow clean with compressed air. Blow out from the inside for best results. If the screen becomes bent or warped, or the gasket becomes worn, replace it to prevent material carry-over to the VFC filter chamber.
- Clean and inspect the gasket. Replace it if it is worn.
- Invert SR Series vacuum hoppers onto their flat covers for easier maintenance.
- If the optional SR Series vented internal sequencing valve is installed, make sure you remove compressed air *prior* to servicing.
- If optional supplemental cloth filter bags are being used, periodically inspect for wear and fouling. Clean or replace as necessary.

5-3 Cleaning the Collection Bin
(All Models Except VFC, SFC, CFC 225 and VFC, SFC, CFC 1000)

Use the following procedure to clean the collection bin:

1. Open the toggle fasteners on the bottom of the filter
2. Remove the collection bin.
3. Empty contents of the collection bin and completely clean it.
4. **AFC-A/AFC-K Only:** Adjust the counterbalance so that the dump valve remains open from 3/16” to 1/4” (4 mm to 6 mm) when not under vacuum.
5. Wipe down the gasket and collection bin mating surfaces to ensure a good seal. A good vacuum seal is important for proper operation. Replace gasket if necessary.
6. Check the filter element for excessive wear or damage. If the filter element is damaged, replace it immediately. (See Figure 62 for replacement parts).
7. Return the collection bin to the bottom of the filter.
8. Close the toggle fasteners.

5-4 Cleaning the Filter Shroud
(VFC, SFC, CFC 225 and VFC, SFC, CFC 1000 Only)

Use the following procedure to clean the filter shroud:

1. Remove the dust container from the filter shroud by unclamping the band clamp or loosening the drawstring. (Filters that have been trimmed for 5-gallon pails do not have a drawstring.)
2. Empty the contents of the collection bin and completely clean it.
3. Remove the worm clamp from the bottom of the filter stand mounting plate, and remove the filter shroud.
4. Clean the filter shroud by blowing compressed air through it.
5. Slip the filter shroud over the retaining ring located on the bottom side of the filter stand mounting plate. Secure it with the worm clamp provided.
6. Place the dust container below the filter chamber stand and insert the filter shroud.
7. Fasten the filter shroud to the dust container using either a band clamp or the drawstring. (Filters that have been trimmed for 5-gallon pails do not have a drawstring.)

5-5 Corrective Maintenance

Dealing with Shortened ACA Series Filter Bag Life

If ACA filter bags wear our rapidly, refer to the following list to diagnose certain difficulties:

Chemical Attack

Filter bag material may degrade from certain chemicals in the dust of the air stream.

Moisture

Filter bag material may shrink or degrade from excessive moisture in the filter chamber.

Abrasion

If filter bags are improperly installed, bags can rub together or against filter chamber walls, resulting in excessive wear. Abrasion on the filter bags near the air inlet area indicates that a dust-impingement baffle may be required.

High Temperature

If operating temperatures are above the recommended limit for filter bag material, damage may result.

Consult the Service Department for assistance if difficulties occur.

Chapter 6: Troubleshooting

6-1 Introduction

The utmost in safety precautions should be observed at all times when working on or around the machine and the electrical components. All normal trouble-shooting must be accomplished with the power off, line fuses removed, and with the machine tagged as out of service.

The use of good quality test equipment cannot be over-emphasized when troubleshooting is indicated. Use a good ammeter that can measure at least twice the AC and DC current that can be encountered for the machine. Be sure that the voltmeter has at least minimum impedance of 5,000 OHMS-per-volt on AC and 20,000 OHMS-per-volt on DC scales. Popular combination meters, VOM and VTVM can be selected to provide the necessary functions.

Before making haphazard substitutions and repairs when defective electrical components are malfunctioning, we recommend that you check the associated circuitry and assemblies for other defective devices. It is common to replace the obviously damaged component without actually locating the real cause of the trouble. Such hasty substitutions will only destroy the new component. Refer to wiring diagrams and schematics.

Locating mechanical problems, should they occur, is relatively straightforward. When necessary, refer to the parts catalog section.

NOTICE ***Refer to specific control panel operation and instruction manual for additional details and Troubleshooting information.***

Problem	Possible Cause	Possible Remedy
The pump doesn't run even though it is on line. (Refer to enclosed Control Panel Manual)	The motor overload tripped.	Reset the overload and check the motor for the proper amp draw as listed on the serial tag.
	No demand signal/stations offline.	Check control panel.
	Control panel problem.	Verify wire connections. Inspect output cards.
	Main fuse in power drop or optional fused disconnect has blown.	Replace the fuse.
		Check for 3-phase voltage.
	Motor contactor is faulty.	Repair or replace as required.

Problem	Possible Cause	Possible Remedy
A vacuum receiver bypasses in the Loading cycle. (Refer to enclosed Control Panel Manual)	The bin below the vacuum receiver is full if the amber receiver indicator light is off.	Normal operation. When hopper level drops, material begins conveying to it.
	The receiver is off line.	Put it on line via menus.
	Static convey time was set to zero.	Put in a reasonable convey time via menus.
	Field installed station by-pass switch is simulating a bin-full condition.	Normal operation. Throw field-installed switch to put hopper back in the loading sequence.
	The field-installed station bypass switch is bad or miswired.	Repair, replace, or rewire.
	Insufficient compressed air to shift valves.	Supply 80 psi (552 kPa) compressed air to all compressed air- operated valves.
	The Bin-Full switch sensor fails to close.	Standard switch is normally open, held closed by the magnet. Check for the presence of the magnet and for proper switch operation.
	The Receiver-Full proximity sensor is fouled, creating a false reading (Volume Fill systems only).	Wipe off the proximity sensor. Re-adjust if needed; see Page 86.
	The Receiver-Full proximity sensor has failed closed (Volume Fill systems only).	Replace.
Pressure is present at the vacuum inlet.	Improper pump rotation.	Switch any two wires at the incoming power.
	Blowback solenoid failed open.	Check filter chamber or pump.
No-Convey alarm. (Part of vacuum control panel. Refer to enclosed Control Panel Manual)	Material supply empty.	Refill the supply.
	Material supply bridging.	Agitate material supply.
	Pick up device not in supply.	Re-insert the probe.
	Flapper stuck in open position.	Clear flapper of obstructions.
	Power to vacuum pump off.	Inspect power.
	Bad level sensor.	Replace level sensor.
	Plugged material line.	Find and remove obstruction.
	Vacuum line leak.	Find and repair leak.
	Sequence-T valve problem (where used).	Check for signal, sufficient compressed air, proper wiring and operation.

Problem	Possible Cause	Possible Remedy
High-Vacuum alarm.	Material or vacuum line plugged.	Find and remove the obstruction, such as a coupling gasket and gaylord bags.
	Filter chamber filter dirty.	Clean filter.
	Vacuum hopper filter dirty.	Clean filter.
	Bad atmospheric/sequence-T valve.	Check for signal, sufficient compressed air, proper wiring and operation.
	Vent valve on pump package not operating correctly.	Check for signal, sufficient compressed air, proper wiring and operation.
	Improper piping.	Locate and correct.
	Convey time set too long.	Reduce convey time.
	Collapsing hoses.	Inspect hoses.
	Faulty vacuum switch.	Test – ON – replace switch.
	Take off compartment closed.	Adjust take-off box.
Vacuum receivers are being overfilled. (Refer to enclosed Control Panel Manual)	Conveying times are too long (Time Fill only).	Observe and time the hopper(s) when loading. Note the time needed to fill a hopper. Set the conveying time to a few seconds less.
	Special convey enabled.	
	Maximum conveying times are too long (Volume Fill only) and the Receiver Full proximity switch(es) are not being recognized by the PLC.	Check proximity sensors for proper operation and proper wiring to PLC. Repair. Re-set the conveying times to reasonable times. Re-adjust if needed; see Page 86.
Vacuum receivers are being under-filled.	Poor take-off adjustment.	Observe and time the hopper(s) when loading. Note the time needed to fill a hopper. Set the conveying time to a few seconds more.
	Conveying times are too short (Time Fill only). (See control panel's O & I.)	
	Vacuum line leak.	Find and repair leak.
	No material to convey.	Make sure pickup probe is buried in material source.
	Vacuum filter is plugged.	Clean and/or replace filter.

Problem	Possible Cause	Possible Remedy
Filter chamber filter cartridge is becoming obstructed too frequently by fines and dust.	Dump Delay time set to zero, or insufficient dump delay time.	Set dump delay time to the time it takes the largest vacuum hopper in the system to dump.
	Dusty material. Optional cyclone separator or low-head separator may be needed – Consult sales rep.	Consult sales representative.
	Dusty material — Optional compressed air filter cleaning may be needed on filter chamber.	Consult sales representative.
Pumps and receivers are on-line, but the pumps are not conveying material. (Refer to enclosed Control Panel Manual for specific instructions.)	No material demand at receivers if none of the amber lights on the optional light board are lit.	Normal operation. Pump packages shut off thirty (30) seconds after no demand is detected for the time programmed.
	The on-line receivers are not assigned to the pumps that are on-line.	Reconfigure the control panel, assigning the pumps to the desired hopper.
Optional audible/visual alarm continues to signal after the Press-To-Silence button is pressed. (Refer to enclosed Control Panel Manual for specific instructions.)	The alarm is triggered every time an alarm message displays.	In cases where numerous alarm conditions occur, alarm messages build up in the display buffer. Each time one is released from the buffer, the alarm sounds. The operator may: • Press the silence button after each message • Disable the alarm using the control panel keypad • Cancel No-Convey alarm(s) ①. Correct the problem causing the alarm. Alarm will not trigger again until another high vacuum condition occurs. If multiple alarm messages are in the buffer, the button may need to be pressed a few times.

① To cancel No Convey alarm(s):

- Take the problem receiver(s) off line with field-installed station bypass switches.
- Take the problem receiver(s) off line with the control panel.
- Remove the material demand by filling the bin below the vacuum receiver.

Problem	Possible Cause	Possible Remedy
Optional audible alarm is not functioning. (Refer to enclosed Control Panel Manual for specific instructions.)	The alarm package is wired incorrectly.	Correct wiring. Consult wiring diagram.
	Alarm package component failure.	Troubleshoot and repair/replace problem.
Vacuum conveying rate is declining due to a vacuum loss in the system.	Pump package blower problem. Use a cfm/cfh monitoring device to ensure that blower cfm/cfh is to the manufacturer's specifications. Consult Service Engineer if problem persists.	• Blower is dead-headed. Check for obstruction. • Vent valve is not operating. Check for proper signal, voltage, and 80 to 90 psi (552 to 621 kPa) compressed air. • Worn seals in blower. Rebuild/replace blower. • Worn bearings in blower. Rebuild or replace. • Loose drive belt(s). Tighten or replace if worn.
		Follow the vacuum path from the blower through the filter, piping, valves and material receivers to isolate where the loss occurs.
		Filter chamber problem. The vacuum at the filter chamber should be the same as the blower generates. If the vacuum at the filter chamber is adequate, the problem is down line.

Problem	Possible Cause	Possible Remedy
Vacuum conveying rate is declining due to a vacuum loss in the system. (Cont'd.)	Pump package blower problem. Use a cfm/cfh monitoring device to ensure that blower cfm/cfh is to the manufacturer's specifications. (Cont'd.) Consult Service Engineer if problem persists.	Dirty filter. Clean or replace filter. • Loose clamps, gaskets or couplers. Tighten or replace. • Filter chamber discharge flapper not sealing under vacuum. Check for proper operation; clean or repair as needed. • Check for faulty compressed air blowback solenoid. Check for voltage signal during cleaning cycle, proper solenoid operation, incorrect wiring, proper compressed air connection, and for worn plunger in valve.
		Vacuum line problem. Disconnect the vacuum line at the first vacuum hopper and block it off. The vacuum here should equal the vacuum at the blower. Allow a few seconds for vacuum to build. If the vacuum here is low, disconnect the piping halfway to the first vacuum hopper and check the vacuum there. If proper vacuum exists, the problem is upstream. If not, work backward to isolate the vacuum loss.
		• Tighten loose pipe couplers; replace worn gaskets as needed. • Replace any damaged piping found.
	Leaks in vacuum lines between valves.	Check for leaks as described in previous steps.

Problem	Possible Cause	Possible Remedy
Vacuum conveying rate is declining due to a vacuum loss in the system. (Cont'd.)	Vacuum leak(s) in vacuum hoppers.	• Replace or re-install worn or misaligned gaskets. • Hopper discharge flapper not sealing under vacuum. 1) Replace worn or missing gasket. 2) Clean fouled flapper. 3) Check counterweight for proper operation. Repair or adjust as needed. • Internal check valves missing or damaged. On single line Y systems, internal check valves must be installed in the vacuum hoppers to seal all hoppers not being conveyed to. If the check valves are present and undamaged, they may be pushed too far onto the tube stub to permit a proper seal. Also, if the hopper is over-filled, the check valve may not seal properly.
	Vacuum leaks in material lines.	Check for leaks as described in previous steps.
	Material take-offs not properly adjusted.	Too much air and not enough material or too much material and not enough air. Close takeoff compartment material inlet, slowly open until you hear material surging and slugging. Close material inlet until surging disappears. On most systems, a proper adjustment generates a 6" to 10" Hg (203 to 339 millibars) vacuum.
	The blower is dead-headed.	Check the blower inlet for obstruction.

Problem	Possible Cause	Possible Remedy
Material is sucked from the filter chamber and through the blower.	Filters in the filter chamber are dislodged, worn, or not seated properly on the gasket.	Replace or repair **immediately**. If the exhaust silencer has material in it, replace it to prevent fire hazard.
	The material conveyed is not what the system was designed to convey. Very dusty materials have different conveying needs.	Consult manufacturer for advice on hardware requirements.

Other service problems or questions can be answered by contacting the Service Department.

Chapter 7: Appendix

7-1 Technical Specifications

The following design information is provided for your reference:

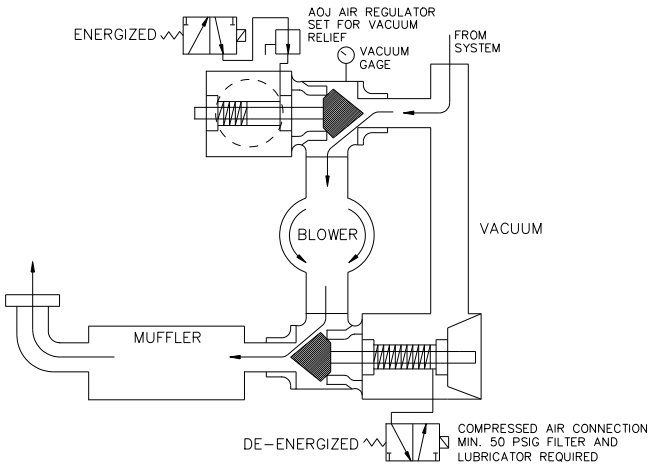
1. No modifications are allowed to this equipment that could alter the CE compliance
2. Ambient temperature: 40 degrees Celsius – Maximum (104 degrees Fahrenheit)
3. Humidity range: 50% relative humidity
4. Altitude: Sea level
5. Environment: Clean, dust-free and non-explosive
6. Radiation: None
7. Vibration: Minimal, i.e. machine mounting
8. Allowable voltage fluctuation: +/- 10%
9. Allowable frequency fluctuation: Continuous +/- 1%
   Intermittent +/- 2%
10. Nominal supply voltage: 460/3/60 (Verify on serial number tag)
11. Earth ground type: TN (system has one point directly earthed through a protective conductor)
12. Power supply should include a ground connection.
13. Over-current protection is supplied in the conveying system, but additional protection should be supplied by the user.
14. The door-mounted disconnect serves as the electrical disconnect device.
15. Conveying system is not equipped with local lighting.
16. Functional identification
17. Conveying system is equipped with a CE mark
18. Conveying system is supplied with an operating manual in the language of the destination country.
19. Cable support may be required for power cord, depending on final installation.
20. No one is required to be in the interior of the electrical enclosure during the normal operation of the unit. Only skilled electricians should be inside the enclosure for maintenance.
21. Doors can be opened with a screwdriver, but no keys are required.
22. Two-hand control is not required or provided.
23. All components should be moved around and set in a place with a lift truck or equivalent.
24. There are no frequent repetitive cycles that require manual control—repetitive functions are automatic while the conveying system is operating.

25. An inspection report detailing the functional test is included with the conveying system.
26. The machine is not equipped with cableless controls.
27. Color-coded (harmonized) power cord is sufficient for proper installation.

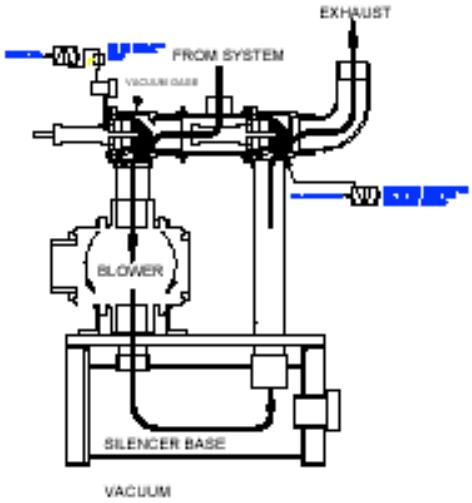
7-2 Drawings and Diagrams

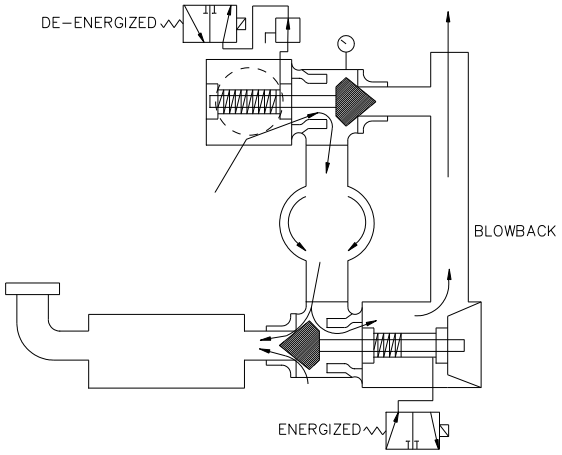
Figure 84: Non-Reversing Valve Cycle of Operation (VTP, APD, SPD, CPD Pumps)

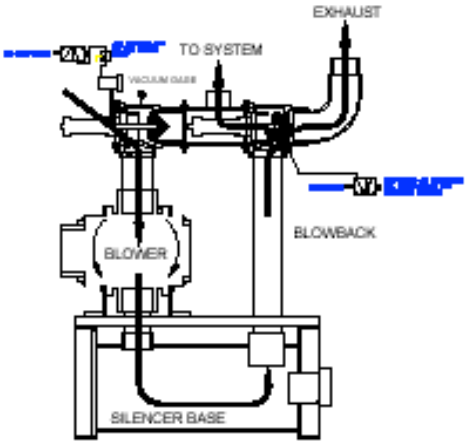
VTP

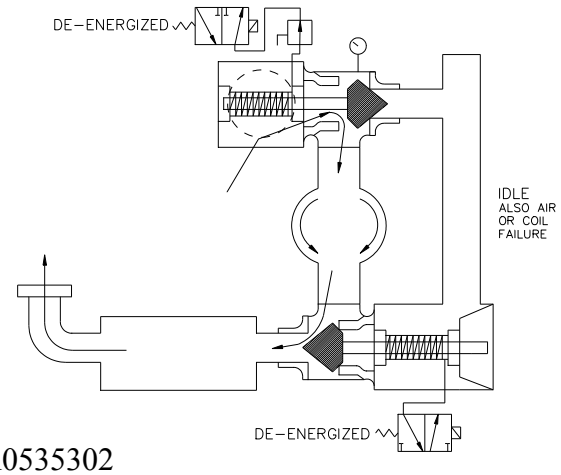


XPD









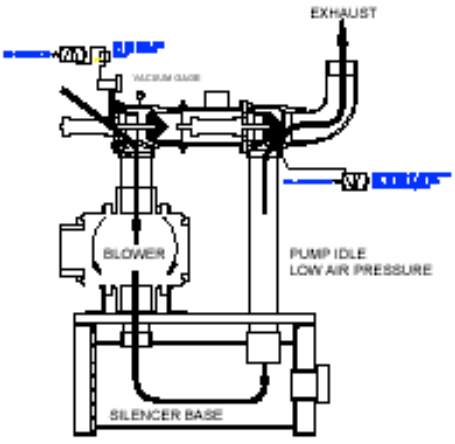


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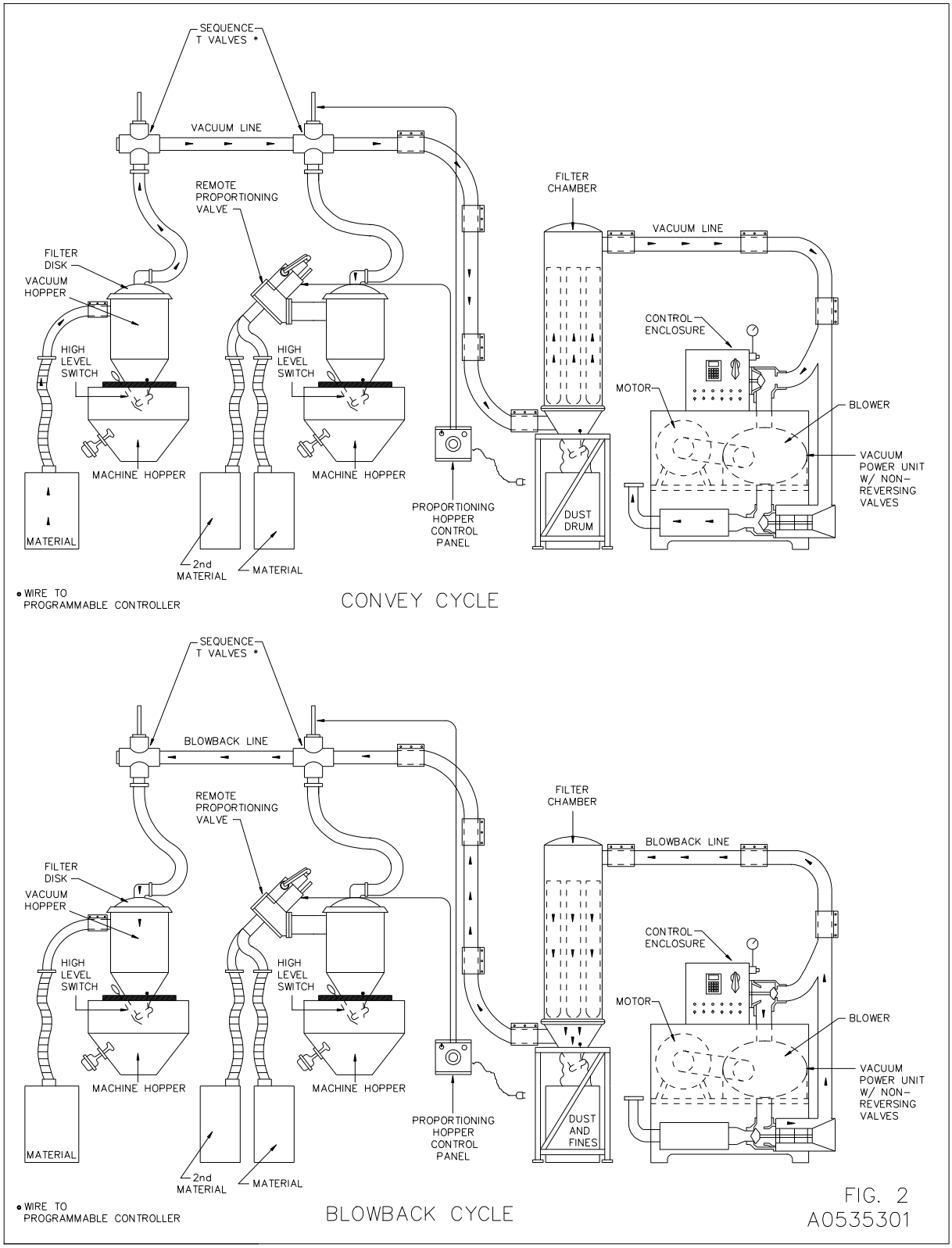
Figure 85: Equipment Cycles



7-3 Spare Parts List

Figure 86: Vacuum Power Units; 5 to 15 hp (3.73-11.19 kW) Models Exploded View

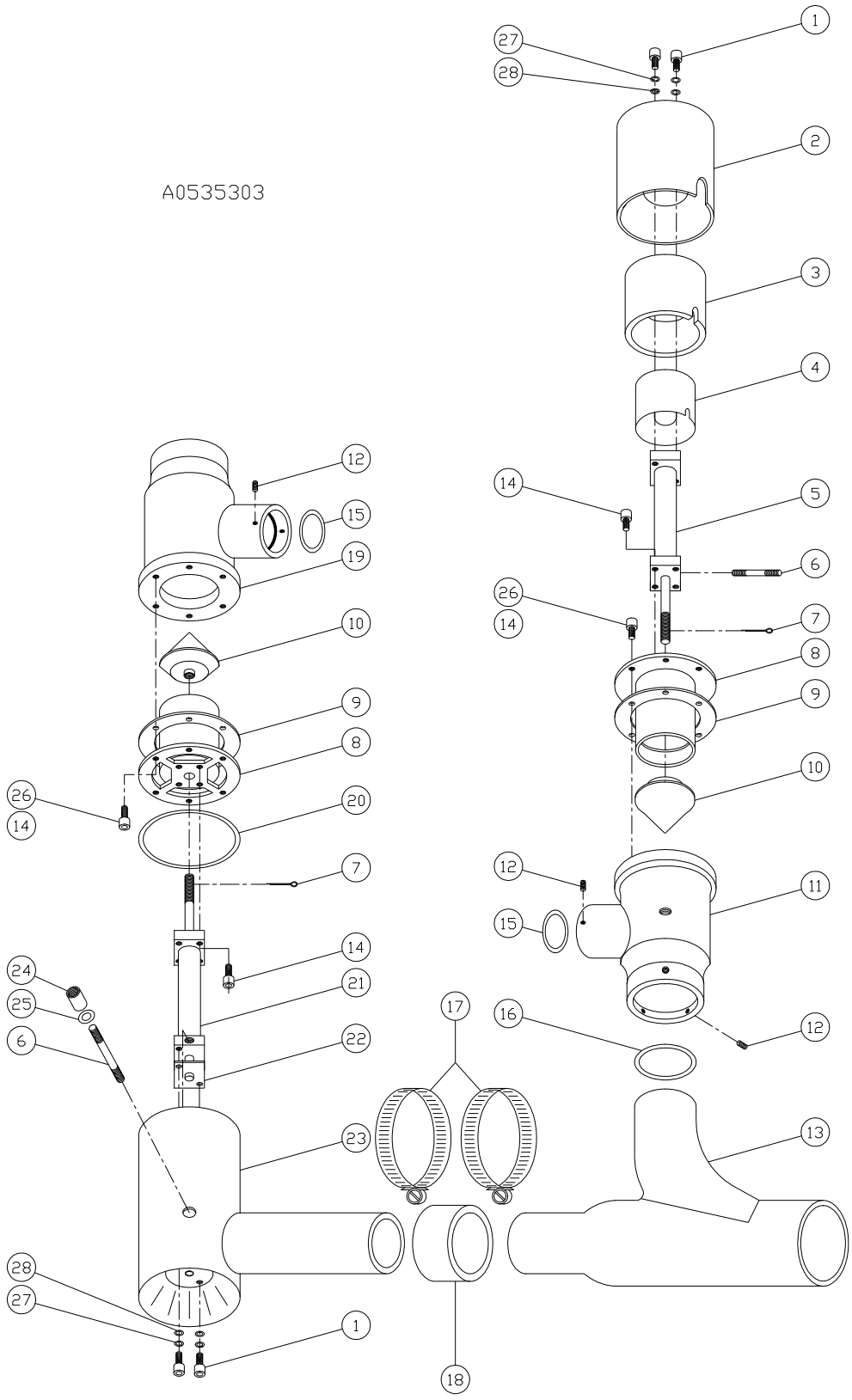


Figure 87: Vacuum Power Units; 5 to 15 hp (3.73-11.19 kW) Models Spare Parts List

Part number	Part description
W00018087	Air cylinder assembly, upper valve, includes: (1) #17688 air cylinder, (1) #1958 plunger, (1) #17812 gasket, (1) #3237 cotter pin, (1) #17957 end plate with seat, (4) #2337 socket head screws, (1) #13749 pipe nipple
W00018088	Air cylinder assembly, lower valve, includes: (1) #17529 air cylinder, (1) #1958 plunger, (1) #17812 gasket, (1) #3237 cotter pin, (1) #17639 end plate with seat, (4) #2337 socket head screws, (1) #13749 pipe nipple, and (1) 17650 O-ring
W00017529	Air cylinder, lower valve
W00017688	Air cylinder, upper valve
W00017552	Air cylinder seal replacement kit
W00052175	Belt, drive, 3VX400, 5 hp unit
W00011770	Belt, drive, 3VX475, 7½ hp unit
W00052546	Belt, drive, BX42, 10 hp unit
W00052181	Belt, drive, BX44, 15 hp unit
W00052178	Bushing, blower sheave, 7½ hp and 10 hp units
W00011490	Bushing, blower sheave, 15 hp unit
W00011494	Bushing, motor sheave, 5 hp unit
W00011491	Bushing, motor sheave, 7½ hp and 10 hp units
W00011495	Bushing, motor sheave, 15 hp unit
W00001596	Cap, end, for non-sound enclosure units
W00000334	Clamp, hose, for P/N 3816, 2½" (approx. 63.5 mm) ID hose
W00001142	Connector, 90 deg., for ¼" OD poly tube
W00013971	Connector, 90 deg., for ¼" OD copper tube
W00001135	Connector, straight, for ¼" OD poly tube
W00001781	Gasket, 1/32"
W00001043	Gauge, vacuum
W00003816	Hose, rubber, 2½" ID x 3½" long
W00052089	Silencer, discharge, horizontal
W00052014	Silencer, discharge, vertical
W00017733	Silencer, discharge, used with W00052089 on S/E units

Part number	Part description
W00011484	Sheave, blower, less bushing, 7½ hp unit
W00052545	Sheave, blower, less bushing, 10 hp unit
W00052183	Sheave, blower, less bushing, 15 hp unit

Part number	Part description
W00011483	Sheave, motor, less bushing, 7½ hp unit
W00052544	Sheave, motor, less bushing, 7½ hp unit
W00052184	Sheave, motor, less bushing, 15 hp unit

Part number	Part description
W00001045	O-ring, 2½" ID
W00001738	O-ring, 3" ID
W00017650	O-ring, 4¾" ID
W00003237	Pin, cotter, 1/16"
W00001958	Plunger, 3"
W00013961	Regulator, air pressure
W00016288	Seal, air entrance fitting
W00014988	Solenoid valve, 115 VAC, vacuum-vent
W00014987	Solenoid valve, 24 VDC, vacuum-vent

Part number	Part description
W00014659	Solenoid valve, 115 VAC, kay valve
W00014658	Solenoid valve, 24 VDC, kay valve
W00018089	Spring, air cylinder
W00001174	Tubing, polyethylene, ¼" OD
W00005592	Tubing, copper, ¼" OD
A0547953	Vacuum switch, 14" Hg
W00052055	Valve assembly, lower
W00017802	Valve assembly, upper

NOTICE

Refer to the Bill of Materials report included in the Customer Information Packet for a complete listing of parts.

Figure 88: Vacuum Power Units; 25 to 30 hp (18.65-22.38 kW) Models Exploded View

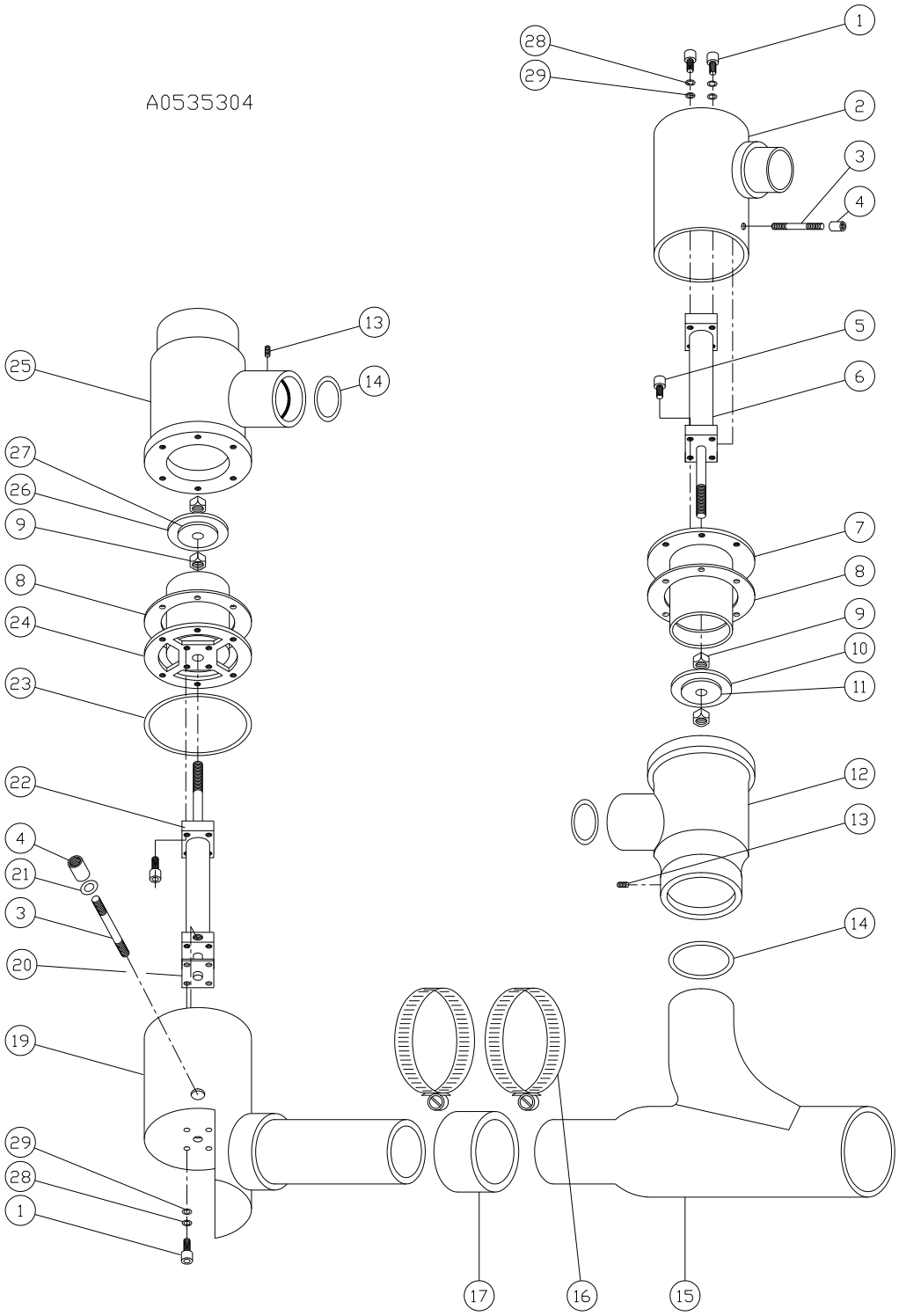


Figure 89: Vacuum Power Units; 25 to 30 hp (18.65-22.38 kW) Spare Parts List

Part number	Part description
W00018616	Air cylinder assembly and valve repair kit; for W00018080 upper valve
W00018617	Air cylinder assembly and valve repair kit; for W00018081 upper valve
W00017919	Air cylinder, lower valve
W00017918	Air cylinder, upper valve
W00018625	Air cylinder seal replacement kit; for W00017919 lower valve air cylinder
W00018626	Air cylinder seal replacement kit; for W00017918 upper valve air cylinder
W00016022	Belt, drive, 25 hp; 2 required
W00533012	Belt, drive, 30 hp; 2 required
W00054462	Bushing, blower; 25 hp units
W00052238	Bushing, blower; 30 hp units
W00016019	Bushing, motor; 25 hp and 30 hp units
W00001466	Clamp, hose; for 4½" ID hose
W00001142	Connector, 90 deg. elbow; for ¼" OD poly tube
W00001135	Connector, straight; for ¼" OD copper tube
W00013971	Connector, 90 deg.; for ¼" OD copper tube
W00012767	Connector, straight; for ¼" OD copper tube
W00012218	Elements, filter, inlet silencer
W00001043	Gauge, vacuum
W00018017	Gasket, valve; end cap mounting
W00018018	Gasket, air cylinder mounting
W00003246	Hose, rubber, 4½" ID x 4" long
W00051283	Silencer, horizontal
W00002353	Silencer, UH-4, vertical
W00003231	O-ring, 4½" ID x 4¾" OD x ⅛" thick
W00018016	O-ring, 8¼" ID x 8½" OD x ⅛" thick
W00018112	Plunger, upper and lower valves
W00013961	Regulator, air pressure
W00016288	Seal, valve air entrance fitting; Stat-O-Seal
W00002929	Screen, exhaust muffler
W00014988	Solenoid valve, 115 VAC, vacuum/vent
W00014987	Solenoid valve, 24 VDC, vacuum/vent
W00014659	Solenoid valve, 115 VAC, kay valve
W00014658	Solenoid valve, 24 VDC, kay valve
W00054463	Sheave, blower, less bushing; 25 hp
W00533127	Sheave, blower, less bushing; 30 hp
W00054461	Sheave, motor, less bushing; 25 hp
W00533128	Sheave, motor, less bushing; 30 hp
W00001174	Tubing, polyethylene, ¼" OD; per foot
W00005592	Tubing, copper, ¼" OD; per foot
A0547953	Vacuum switch, 14" Hg
W00018080	Valve assembly, lower
W00018081	Valve assembly, upper

NOTICE ***Refer to the Bill of Materials report included in the Customer Information Packet for a complete listing of parts.***

7-4 Technical Assistance

Parts and Service Department

The ACS Customer Service Group will provide your company with genuine OEM quality parts manufactured to engineering design specifications, which will maximize your equipment's performance and efficiency. To assist in expediting your phone or fax order, please have the model and serial number of your unit when you contact us. A customer replacement parts list is included in this manual for your convenience. ACS welcomes inquiries on all your parts needs and is dedicated to providing excellent customer service.

For immediate assistance, please contact:

- North, Central and South America, 8am – 5pm CST +1 (800) 483-3919 for drying, conveying, heating and cooling and automation. For size reduction: +1 (800) 229-2919.
  North America, emergencies after 5pm CST (847) 439-5855
  North America email: acsuscanadacustserv@corpemail.com

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